The YOUNG FOLKS TREASURY

Roland Horton
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PANSIES

IDEAL HOME LIFE

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INTRODUCTION

IDEAL HOME LIFE is chock full of practical suggestions for home happiness.

The first division, "HOME PLAYS FOR LITTLE PEOPLE," gives a lot of ideas for plays and games about the house for children from babyhood up to ten or twelve years of age. The baby cannot read this, of course, but mother can tell the baby what to do, and she can show the older children how they may do the things that are described here. Some of the school-children will enjoy reading about "Magic Cities" and Bottle Dolls themselves.

"HOME AMUSEMENTS FOR EVERYBODY" gives a big grist of indoor and outdoor games, puzzles, tricks, and conundrums. Right after this you are told how to get up a party and use these plays. "WHEN YOUNG PEOPLE GET TOGETHER" also describes the popular boys' and girls' clubs of the day.

The next three sections are all about making the most of the home itself. "MAKING OUR HOME BEAUTIFUL" describes how the rooms, the music, the pets, and the guests all contribute to our happier living. "ENJOYING EACH OTHER" gives novel ideas about meal-time, evening play, stormy Saturdays in the house, and tells how to travel together and how to have a family camp. "OUR HOME LIBRARY" suggests the best books with which to start the home collection, and how to use them.

Perhaps the most valuable and interesting portion of the volume to many of our readers is "HOME HANDICRAFT." A group of teachers of manual training in one of the most beautiful cities of America interested their boys and girls by telling them they were going to prepare these articles and sketches to be read by tens of thousands of their young fellow-countrymen, and they spent a whole winter in working out these home-made toys and implements. So we know that these are

the things young folks like to make, and that you can make them yourselves by these directions.

"Making Money At Home"—how many of us want to do it! And this section tells how it has been done.

A later portion is devoted to the fascinating subject of growing strong and beautiful. Some pretty-well-known authorities tell you how to go through systematic exercises and how to train for athletic sports.

The volume closes, appropriately, with over sixty "Reading Journeys for the Home," which open up the riches of the whole Treasury both to parents and children. First come the portions that the mother will want to read to the child who is not old enough to read for himself. Then come the departments that interest those who are in the elementary grades of school. Finally are given the topics that our young people will most care for.

These graded courses make it easier for each child to find what is most suitable to his own taste and development, and show him that all the interest of the set is confined to no single volume.

We expect that parents will recognize this as a valuable feature in a well-organized plan for home education.

William Byron Forbush

CONTENTS

PAGE

Introduction - - - - - - - - - - - - - v

HOME PLAYS FOR LITTLE PEOPLE

Playthings for the Baby - - - - - - - - - 3
By Mrs. Princess B. Trowbridge

Magic Cities - - - - - - - - - - - - - 6
By E. Nesbit

"Imaginary Countries": A Curious Child's Play - - - 16
By Hapgood Moore

Playing in the Sand - - - - - - - - - - 18

Bottle Dolls - - - - - - - - - - - - - 20
By William Byron Forbush

Kitchen Playthings - - - - - - - - - - 24

The Porch as a Playground - - - - - - - - 27
By The Editors

HOME AMUSEMENTS FOR EVERYBODY

Indoor Games - - - - - - - - - - - - - 31

Toys and Toy Games - - - - - - - - - - 70

Tricks - - - - - - - - - - - - - - - 75

Puzzles and Conundrums - - - - - - - - - 86

Acting Charades and Little Plays - - - - - - - 103

Outdoor Games - - - - - - - - - - - - 129

WHEN YOUNG PEOPLE GET TOGETHER

Getting Up a Party - - - - - - - - - - 165
By William Byron Forbush

PAGE

The Boy Scouts - - - - - - - - - - - 172
By John L. Alexander

The Knights of King Arthur - - - - - - - 177
By Agnes Barden Dustin

The Woodcraft League - - - - - - - - - 181
By Ernest Thompson Seton

The Camp-Fire Girls - - - - - - - - - - 188
By Ida T. Thurston

MAKING OUR HOME BEAUTIFUL

Making the Home Cheerful - - - - - - - - 197
By Margaret E. Sangster

Music as a Help to Home Happiness - - - - - - 202
By Mrs. Gustav L. Becker

How to Entertain a Guest - - - - - - - - - 206
By Susan Anna Brown

Home Pets - - - - - - - - - - - - - 212

The Care of Small Aquariums - - - - - - - - 212
By Raymond C. Osburn

Canaries - - - - - - - - - - - - - 226
By Alexander Wetmore

Dogs - - - - - - - - - - - - - - 235

Rabbits - - - - - - - - - - - - - 236
By David E. Lantz

Guinea Pigs - - - - - - - - - - - - - 240
By David E. Lantz

ENJOYING EACH OTHER

Table Talk in the Home - - - - - - - - - 247
By William Byron Forbush

How to Brighten "Threatening Weather" in the Home 250
By The Editors

How We Spend Stormy Saturdays - - - - - - - 252
By Hapgood Moore

PAGE

Our Home Sundays - - - - - - - - - - 255
By The Editors

Our Family Camp - - - - - - - - - - 257
By Dillon Wallace

Seeing Things Out of Doors - - - - - - - 265
Compiled by The Editors

OUR HOME LIBRARY

How to Read - - - - - - - - - - - 273
By Edward Everett Hale

Hints for People Who Do Not Read - - - - - 277
By Lyman Abbott

On Readers and Books - - - - - - - - - 281
By Henry van Dyke

HOME HANDICRAFT

Toys and Instruments Every Child Can Make - - - 287
Edited by Don C. Bliss

Introduction 287
By Don C. Bliss

Your Work-Bench 289
By F. P. Reagle

Toys 294
By F. P. Reagle

Water-Wheels 301
By F. P. Reagle

Water-Pumps 307
By R. T. Johnston

Time-Keepers 311
By Grace Vincent

Wind and Weather Gauges 316
By Grace Vincent

Steam-Engines 325
By R. T. Johnston

Electrical Apparatus 336
By R. T. Johnston

A Derrick 343
By Grace Vincent

Bird Houses 346
By Grace Vincent

A Sand-Mill 349
By Grace Vincent

PAGE

How to Make a Wireless Outfit - - - - - - 352
By A. Frederick Collins

How to Take Photographs - - - - - - - - 360
By C. H. Claudy

MAKING MONEY AT HOME

Making the Home Garden - - - - - - - - 371
By Albert E. Wilkinson

Making and Selling Things - - - - - - - 378
By The Editors

Working for an Employer - - - - - - - - 388

How to Keep Personal Accounts - - - - - - 393
By The Editors

KEEPING WELL

The Care of the Body in Health - - - - - - 397
By Andrew F. Currier, M.D.

Rules for Health and Beauty for Girls - - - - 428
By Martha Foote Crow

First Aid to the Injured - - - - - - - - 431
Edited by F. B. Kilmer

HEALTH EXERCISES

How Boys and Girls Should Exercise - - - - - 441
By Bernarr Macfadden

Common-Sense Physical Training - - - - - - 449
By William Blaikie

SYSTEMATIC PHYSICAL TRAINING

Introduction - - - - - - - - - - - - 459

Exercises without Apparatus - - - - - - - 475

Exercise with Apparatus - - - - - - - - 493

Physical Training for Women - - - - - - - 504

Special Exercises for Women - - - - - - - 509

READING JOURNEYS FOR THE HOME

IN

THE YOUNG FOLKS TREASURY

		PAGE
1.	Jingles for Babies	521
2.	Home Stories	521
3.	Stories in Verse	522
4.	Little Songs for Little Folks	523
5.	Baby Beasts	523
6.	Funny Stories	524
7.	Friendly Men and Animals	525
8.	Little Plays Indoors and Out	525
9.	Little People in Many Lands	526
10.	Little Stories of This World's Wonders	527
11.	Pictures for Little People	527
12.	Fairy Land	528
13.	Outdoor Sports the World Around	529
14.	Home Songs	530
15.	Stories of Fun and Fancy	531
16.	How Other Children Live	532
17.	Strange Homes and Their Tenants	532
18.	Home Life Day by Day	533
19.	Men and Women the World Loves	534
20.	Adventures with Animals	535
21.	Parties and Playtime	535
22.	Old-Fashioned Stories	536
23.	Songs of This Wonderful World	536
24.	Boys and Girls at Work and Play	537
25.	Animal Intelligence	538
26.	When Great Folks Were Little Folks	538
27.	Animal Fun and Fiction	539
28.	Happy Holidays	540
29.	How to Know the Trees	540
30.	Myths and Legends	541
31.	Ballads and Hero-Tales	542
32.	How to Know the Animal World	543
33.	Pictures School Children Like	544

PAGE

34. Thrilling Stories of Inventions - - - - - - 545
35. Adventure Stories - - - - - - - - - - 546
36. Curiosities of the Animal World - - - - - 547
37. What Boys Can Make and Do - - - - - - 548
38. What Girls Can Make and Do - - - - - - 548
39. Noble Women of All Time - - - - - - - 549
40. Great Men of To-Day - - - - - - - - 550
41. Things Worth Seeing in America - - - - - 550
42. The Great Explorers - - - - - - - - 551
43. Songs of Human Love - - - - - - - - 551
44. Best Music and Great Musicians - - - - - 552
45. Around the Year with Nature - - - - - - 552
46. Things Worth Seeing in the Old World - - - - 553
47. Heroes of Legend - - - - - - - - - 553
48. The Circling Seasons - - - - - - - - 554
49. Athletics and Health - - - - - - - - 555
50. Nations We Need to Know Better - - - - - 556
51. Everyday Heroism - - - - - - - - - 556
52. Modern Engineering - - - - - - - - 557
53. Lives Laid Down for Others - - - - - - 557
54. Songs of Joy and Sorrow - - - - - - - 558
55. Heroic Men of Olden Times - - - - - - 559
56. Love of Country - - - - - - - - - 560
57. Great Artists - - - - - - - - - - 561
58. A Score of World Wonders - - - - - - 562
59. The Choice of a Life Work - - - - - - 563
60. Pictures We Learn to Love - - - - - - 563
61. The Best Things in Life - - - - - - - 564

ILLUSTRATIONS

Pansies (*color*) - - - - - - - - - *Frontispiece*

FACING PAGE

Interior of a Cottage - - - - - - - - - - 4
Pleasant Pictures of Child Life—I. - - - - - - 32
A Children's Party (*color*) - - - - - - - - - 48
Pleasant Pictures of Child Life—II. - - - - - 64
Snow Games - - - - - - - - - - - - 136
Ring o' Roses - - - - - - - - - - - - 148
Mr. and Mrs. Ernest Thompson Seton - - - - - 184
A Camp-Fire Girl - - - - - - - - - - - 192
Song of Home and Reminiscence - - - - - - 204
Pets - - - - - - - - - - - - - - 212
Dogs - - - - - - - - - - - - - - 236
The Evening Hour (*color*) - - - - - - - - 248
Sunshine in the Home (*color*) - - - - - - - 256
Reading the Old Books (*color*) - - - - - - - 276
Lyman Abbott - - - - - - - - - - - - 280
A Florentine Poet (*color*) - - - - - - - - 284
Toys Every Child Can Make - - - - - - - 288
Water Wheels - - - - - - - - - - - - 304
Sun-Dial - - - - - - - - - - - - - 312
Toy Engines - - - - - - - - - - - - 332
Lighthouse and Wireless Station at Old Point Comfort - 352
Photographing Enemy Trenches from the Clouds - - 360
Chrysanthemums (*color*) - - - - - - - - - 372
Several Varieties of Double, or Show, Dahlias (*color*) - 376

FACING PAGE

Sweet Peas (*color*) - - - - - - - - - - - 380
Physical Exercises for Boys and Girls—I. - - - - 444
Physical Exercises for Boys and Girls—II. - - - 446
Physical Exercises for Boys and Girls—III. - - - 448
Physical Exercises for Boys and Girls—IV. - - - 452
Home Study - - - - - - - - - - - - 520
Reading Aloud in the Home (*color*) - - - - - 524

HOME PLAYS FOR LITTLE PEOPLE

PLAYTHINGS FOR THE BABY

By MRS. PRINCESS B. TROWBRIDGE

A WORSTED ball makes an excellent plaything for a little baby. If it is suspended from his carriage or crib it will help him to learn to focus his eyes, and he will be amused by it for a long time. When the child is a little older, let him sit on a quilt on the floor and play with several balls in the six primary colors, red, orange, yellow, green, blue, and violet. Each ball should have a worsted string of the same color attached to it. When the child is a little older still, play simple little games with him, such as rock-a-bye baby, pendulum of a clock, swinging the ball back and forth and up and down and in other ways that will occur to every mother. Unconsciously the child will acquire a sense of form, color, motion, and position by these games. Say to him, "See the pretty round balls." "See the pretty red paper," and the child will delight to find and bring to you other things that are round like a ball, and red like the paper. A set of worsted balls in the six primary colors can be obtained from the kindergarten supply houses.

Clothespin Soldiers

Clothespins make an excellent plaything for babies. They can be used for babies or soldiers, or to make fences, trees, log houses, and many other interesting things. Playthings that can be taken apart and put together again are good to have; also blocks with which the child can build all kinds of objects —engines that he can push along the floor, balls to bounce and throw, doll carriages, washing sets, etc. Dolls with clothes that button, and unbutton and come off, may be used to teach the children how to dress and undress themselves.

Kindergarten beads are very useful and helpful. They are in the form of half-inch wooden balls, cubes, and cylinders, in the six primary and secondary colors, and also in the natural wood. A shoe-lace is used for stringing them. I would suggest, to begin with, that the child string balls only, and all one color. After he has made a long string of these, ask if he would like to use two colors. He will probably string them in irregular order at first, and if so it will be necessary to suggest alternating the colors, putting on two of one color and one of another, and so on. In this way he will soon learn all the colors, and numbers perhaps up to six or eight, and will know one form. Form is the most difficult subject for the little child to grasp, and for this reason the different forms should be introduced last in these little lessons.

Play Potters

What else is there with which little children's hands can be kept occupied? First of all, sand. Just turn the children loose in a pile or table of sand, with a spoon, a pail, a cup, or anything with which they can dig or shovel. I personally do not like to have sand in the house, but if you have a suitable place for it, it need not make any trouble. An old kitchen table turned upside down with the legs cut short and put on the other side, makes a good table for sand. A piece of burlap or denim placed under the table keeps the sand from being scattered over the house.

With clay, a simple little cradle may be made. The child first rolls a piece into a ball, cuts it in half, with a string. One of these halves forms the lower part of the cradle. The other he cuts in two, using one piece for the top, and remodeling the other into a "ball for baby."

Birds' nests with eggs can be made with clay; also apples, oranges, cups and saucers, and even animals may be attempted. Plasticine is the best kind of clay to use, as it is easily handled and is always ready.

For little children, before they are old enough to use scissors, tearing paper is an engaging occupation. Tear a piece

From a Thistle-print.

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INTERIOR OF A COTTAGE

From a Painting by Josef Israels.

of old newspaper into an oblong shape. It may be any size, about two by four inches we will say. By folding this in the middle, it will make a little tent. Again, fold in thirds, one piece turned up and one down, for a chair. Turn both ends down for a table. The child can tear paper into trees, a ball, doll babies, and many other simple shapes.

What Scissors Can Do

When the child is old enough he can begin to use scissors, but be sure to provide a pair with blunt points that cannot easily hurt him. These will afford endless hours of amusement and profit. Have you found that "He cuts papers all over the floor?" Of course he does, but use this occasion to teach him neatness. Let him have his own little waste-basket, and he will delight in picking up the papers.

Have him cut pictures from old magazines, and paste them into a book, made from manilla wrapping paper. To make the book, take any desired size of paper, fold several sheets in half, and sew them together along the crease. A pretty picture might be pasted on the front page, or the child could draw one on it. This will take many days' work, but all the time he will be learning many lessons in patience, concentration, neatness, and accuracy, and will be developing artistic talent if he is apt at drawing. If, in his cutting, he comes to a picture that has a story, tell it to him. Do not criticize his work, as this may discourage him, but see to it that he does the best he can.

Let the child draw with colored crayons or "crayolas." You will be surprised at how soon and how well, under proper guidance, he will be able to use this means of expressing himself.

MAGIC CITIES

By E. NESBIT

I DO not want you to think that I am boasting about my magic city. But I want you to believe that it was very beautiful, and that you can build one just as beautiful or much more beautiful if you care to try it. It is such an easy game. Everyone can play it. And everyone likes it—even quite old people.

The best place to build is on a table—or tables. Tables of different shapes, heights, and sizes make beautiful sites for cities. And bureaus are good, if you may take the drawers out and empty the pigeon-holes. I remember a wonderful city we made once: it was called the "City of a Thousand Lights," and it was built on a bureau, two large tables and three other smaller ones, all connected by bridges in the handsomest way. The bureau was the Temple of Mung, and we sacrificed a pale pink animal from the Noah's Ark at the shrine of this, the most mysterious of the gods of Pegana. The thousand lights—there were not a thousand, really, but there were many luminous towers, with windows of a still brighter glow—were made by putting a night-light in a tumbler—a little water first by way of fire insurance—and surrounding the tumbler by a sheet of paper with windows and battlements and fixed to a cylindrical shape by pins. The paper cylinders are of course fitted on outside the tumblers so that there is no danger of fire. All the same it is better to let a grown-up do the luminous towers.

Having chosen your site and blocked out the mass of your buildings, you begin to collect the building material.

Building Materials

When you have seen the silhouette of your city and begin to look for stuff to build with, you will instantly find that

everything you can lay your hands on is *too small.* Now is the time to look for boxes—not the carved sandal-wood boxes in which aunts keep their pins, nor the smooth cedar-wood boxes in which uncles buy their cigars, though both these are excellent when you come to the details of your work, but for the mass you want real big boxes. There are the boxes in which starch is packed, and cocoa. The boxes in which your father gets his collars, and the boxes in which your mother gets her chocolates, though not really large, should be collected at the same time, because they need the same treatment.

I am assuming now that you are not building a city for an afternoon's amusement, but one for which you have found a safe resting-place—a city that may take days to build and will not be disturbed for days. If you can once found your city in a safe place, and you are working at it day after day, you will go on thinking of more and more things to be added to it, and it will grow in beauty under your hands as naturally as a flower under the hand of summer.

You have now your collection of boxes—they are of plain, rough wood, and probably disfigured by coarse, colored printed papers telling what the boxes once held. These papers you wash off, and when the boxes are clean and dry, you paint or color them to suit your requirements. Now your requirements are large blocks of color to match bricks, and bricks are of three colors—white, terra-cotta, and stone color.

To Paint Your Houses

To these three I would add a dark brown. Dark wood in a city gives a wonderful richness and helps the lighter colors more than you would think possible. A city in which some buildings are of dark wood will have an air of reality never achieved by a city where all is red or white or stone color.

Your boxes then must be colored either white, red, stone color, or dark brown. In the white use either white paint—flat, not shining, or if that cost too much trouble and money, whitewash made of whitening, size, hot water, and a pinch of yellow ochre or chrome powder to give it a pleasant ivory

creaminess. There should be a good deal of size so that the whitewash does not come off on everything.

The red boxes can be painted to match red bricks, or color-washed (whitewash as before, but red ochre for color).

Stone color is not a very satisfactory tint and too much of it makes for gloom. But if you desire stone color you can make it by putting a pinch of raw umber in the whitewash. Or you can paint your boxes with this uninteresting tint—resembling the doors of back kitchens. With these paints of color-washes you can make your odd, many-shaped boxes into smooth-surfaced blocks to match your bricks; and not only wooden but cardboard boxes can be treated in this way. All these colors can be bought at the paint-shop.

When your wood is all smooth you mix your stain. And here I make a present to all housewives of the best floor-stain in the world. Get a tin of Brunswick black—the kind you put on stoves—and some turpentine. Mix a little of black and a little turpentine, and try it on the wood with a smooth brush—a flat brush is the best—till you have the color you want, always remembering that it will be a little lighter when it is dry. When you have decided on the color, paint your bricks and boxes on five out of their six sides lightly and smoothly, keeping to the grain of the wood, and not going over the same surface twice.

A flat brush is the best; it will go right down the side of a brick and color it at one sweep. Then stand each brick up on end to dry. When it is dry you can paint the under bit on which it has been standing. While you have stains and colors going it is well to color some of your arches, and also such things as cotton-spools, and the little wooden pill-boxes that you get at the druggist's. Before coloring these boxes fill them with sand or stones and stick the lids on with glue. Otherwise they will not be heavy enough to build with happily.

This painting or coloring should be done out of doors, or in an out-house, if possible. If you have to do it in the house spread several thicknesses of newspaper before you begin, and make a calm resting-place for your painted things where they can dry at leisure.

Useful Extras

If there are a few pennies to spare, the carpenter will cut you certain wooden shapes which you cannot buy in shops —arches of a comfortable thickness and of satisfying curves, and slabs of board for building steps. These should be of varying lengths and thicknesses and made in sets of twelve steps, with two boards to each step, twenty-four slabs to a set. The biggest might be 1 inch thick and the bottom and largest slabs 12 by 6 inches, lessening to 6 by 1 inch. The next set might be ¾ inch, and of corresponding proportions, then ½ inch, then ¼ inch. The two basic slabs of the ¾ inch would be 9 by 4½ inches, and those of the ½ inch would be 6 by 3 inches. A set with ¼ inch steps (the basic slabs 3 by 1½ inches) would complete the set. Flights of steps of many varying heights and sizes could be built with these slabs. Ask the carpenter to save for you the curved pieces of wood which come out of the arches. They are very useful for the bases of pillars, for towers and for the pedestals of statues or vases. Some of the arches, steps, and blocks should be colored to match the red, white, and brown bricks.

The Eastern Dome

Having now your bricks, boxes, arches, steps, and rounds, you may begin to block out your building. Quite soon you will begin to find that everything is too rectilinear. Even the arches and the rounds and the pillars and the pill-boxes cannot satisfy your desire for curves. This is the moment when you will begin to look about you for domes. And the domes, on the instant of their imposition in your building, will call out for minarets. It is then that you will wander about the house seeking eagerly for things that are like other things.

One day when I had got thus far with my building I saw that I needed to add a hint of the gorgeous East to the fort, and I perceived that what was wanted was a dome—domes.

So I fetched some brass finger-bowls and basins off the sideboard in the dining-room and inverted one on the chief

tower of our fort, and behold! the East began to sparkle and beckon. Domes called for minarets, and chessmen on pillars supplied the need. One thing led to another, and before the day was over the Indian horsemen were in full charge across a sanded plain where palm-trees grew—a sanded plain bounded only by the edges of the table, along three sides of which were buildings that seemed quite suitable piles to reflect their fair proportions in the Ganges or the Sutlej, especially when viewed by eyes which had not had the privilege of gazing on those fair and distant streams.

I learned a great deal in that my first day of what I may term romantic building, but what I learned was the merest shadow-sketch of the possibilities of my discovery. My little son, for his part, learned that a bowl one way up is a bowl, a thing for a little boy to eat bread and milk out of; the other way up it is a dome for a king's palace. That books are not only things to read, but that they will make marble slabs for the building of temples. That chessmen are not only useful for playing that difficult and tedious game on which grown-ups are so slowly and silently intent, or even for playing all those other games, of soldiers, which will naturally occur to anyone with command of the pleasant turned pieces. Chessmen, he learned, had other and less simple uses. As minarets of delicate carved work they lightened the mass of buildings and conferred elegance and distinction, converting what had been a block of bricks into a pavilion for a sultan or a tomb for a sultan's bride.

The Guard-Room

There was a little guard-room, I remember, at the corner of our first city, and there has been a little guard-room at the corner of every city we have built since. In simple beauty, that little guard-room seemed to us then to touch perfection. And really, you know, I have not yet been able to improve on it. The material was simplicity itself: six books, five chessmen, and a basin.

The Mysterious House

There was a black box, I remember, standing on another box, with domino steps. It needed a door, and we made it a door of ivory with the double blank of the dominoes, and a portico of three small cylinders of rolled paper—two for pillars and one to lie on the top of the pillars and complete the portico. You have no idea how fine the whole thing looked —like a strong little house of ebony and ivory—a little somber in appearance perhaps, and like a house that has a secret to keep, but quite fine.

The palm-trees we made out of pieces of larch and yew, fastened by plasticine to the tops of elder twigs—and elder twigs have a graceful carriage, not too upright and yet not drooping. They look very like the trunks of tropical trees. But if you have not elders and larches and yew trees to command, you can make trees for your city in other ways. For little trees in tubs we had southernwood stuck in cotton reels —these make enchanting tubs, and there are a good many different shapes, so that your flower tubs are pleasantly varied.

Searching for Materials

You wander round the house seeking beautiful things which look like other beautiful things. It is best when the owner of the house is an enthusiastic member of the building party; then she will grudge nothing.

In the living-room you will find silver candlesticks and a silver inkstand. The candlesticks are like pillars. Put the inkstand across the pillars and you have a gateway of unexampled splendor. If there be a silver-backed blotting-book, take it. It will make the great door of your greatest temple. Silver bowls should not be passed by, nor bronzes. A vase of Japanese bronze set up between two ebony elephants crowns a flat pillared building with splendor. There may be Chinese dragons or Egyptian gods that have lain a thousand years safe in their bronze amid the sands of the desert, cast aside by the foot of the camel, unseen in the shadow of the tent, and now

decking the mantelpiece of the room you are looting. Little silver figures of knights in armor and what not—take them if the mistress of the house will permit you.

Chessmen, too, as many as you can get, the carved ivory ones, of red and white, and the black and brown kind where the heads of the kings and queens are so like marbles and those of the pawns like boot-buttons; and those little metal animals, heavy and colored life-like, which you see on glass shelves in the fancy shop; take them, too. They will serve other uses than those to which you will dedicate your Noah's Ark animals. Card counters, especially the golden and mother-of-pearl kinds, and dominoes, and the willow-pattern pots and a blue cup or so from the glass-fronted cupboard. Take all these, always giving preference to the things that you will not be asked to put back the same day.

Little Japanese cabinets, tea-caddies of tortoise-shell or wood or silver, silver boxes—and boxes of all beautiful kinds. Do not take the playing cards that people play bridge with; these are never quite the same after they have been used in magic cities, and the queen of hearts always gets lost. You can usually acquire odd packs of cards that nobody wants. Those with black and gold backs are the best. They make gorgeous pagodas, and a touch of plasticine keeps each card where it should be.

In the dining-room you may acquire perhaps, at least you can in mine, brass finger-bowls, and the lids of urns and kettles from the sideboard—egg-cups and mugs and bowls of luster and of blue. The library will yield you books and atlases—very useful for roofs these last, if they do not slope too much from back to edge; if they do, you can get even with them by wedges of paper laid in on the thin side.

But the kitchen will be your happiest hunting-ground, and here you will make a good bag even in those houses where you are not allowed any of the treasures from the living-room or the dining-room.

Cans of all kinds and shapes, from the big brother where coffee once lived to the square smaller ones designed for cocoa, mustard, pepper, and so forth.

A flour-dredger and a pepper-pot, a potato-cutter, patty pans, and those little tall tins that you bake castle puddings in, the round wooden molds with which dairy-maids imprint cows and swans upon pats of butter; brown earthenware bowls and stewing-pots, the lids of teapots, clothes-pegs, jars that have held ginger, and jars that have held jam—especially the brownish corrugated kind of jar—all these things and many more you may glean in a kitchen whose queen is kind. Tumblers for your towers of light, if you are going to have any, can be found among the empty jelly glasses in the preserve closet.

Tiles, by the way, are most useful, and if you have an uncle who is an architect he will have any number sent to him as samples, and he will be rather glad to get rid of them.

Building

As you grow more accustomed to building, you will find that sometimes you build a temple or palace that charms you so much that you wish to build it again; and you will soon learn what are the materials needed, and just take out those and a few more from your store. I say a few more, because you will never build your temple or your palace twice *exactly* the same; you are sure to think of some improvement, however small.

I have made beautiful windows with the sticks of an old ivory fan, framed in dark wood bricks, and ornamented the dark wall above with elephant tusk shells and others, and below with carved ivory card-counters.

There is a certain Elephant Temple which I have built many times. Its floor is a red and white chessboard, and its roof is supported on a double row of white pillars. White pillars surround the altar—a wooden box—on which the ebony elephant stands. On each side of him are red fairy lights, hidden by buttresses from the human eye which peeps through the brazen gates into that shadowy interior, and falling full on the elephant on his pillared shrine. The walls are of big red books—"Sheridan's Plays," "Tom Jones," and Boswell's

"Life of Johnson." The roof is a flat square lid, once the lid of a packing-case, stained a dark brown like the bricks of the walls. On the side are the windows made of the ivory fan, and the dark bricks and the elephant tusk shells. There is a door, too, a mother-of-pearl one; in a former life it was the card-case of a much-loved aunt, who nobly contributed it to the Temple. Above this door is a white animal from the Noah's Ark.

Materials from Unexpected Sources

When once you begin to build, you will find that all sorts of things that before looked neither useful nor beautiful become both, when they are built into your city. Look at the bedstead-knobs in the Elephant Temple, and the pepper-pots and the teacups on the top of the tower of pearl and red.

Those children who are lucky enough to go into the country for a holiday can collect fir-cones and acorns; nicely shaped bits of wood are more easily come by in a country village than in a city. Acorns are most useful, both the acorn and the cup. A brown building with doors and windows outlined in acorn cups with their flat side set on with glue looks like a precious work of carved wood. If you cannot get acorn cups, the shells of Barcelona nuts are good, but they are difficult to cut into the needed cup shape. The shells of peanuts on a stone-colored building look like carved stones, but always the nutshell must fit its edges tightly and neatly to the surface and show as a little round neat boss.

Your own observation will supply you with other little and valueless things, which will become valuable as soon as you stick them evenly and closely on a foundation of their own color. The periwinkle shells and the corn-grains look best on white wood. The shells of the cocoanut have a value all their own. The larger ones, sawn neatly in halves, make impressive domes for brown buildings, and half a small cocoanut shell will roof a cardboard box that has held elastic bands, and you can call it a thatched cottage or the hut of a savage chief. I called mine Cocoanut Cottage, and the curator of my Botanical Museum lived there.

Of course, when you have finished your city, if you ever do finish it, you make up stories about it, and always, even when you are building it, you imagine how splendid it would be if you were small enough to walk through the arches of your city gates, to run along the little corridors of your city palaces. Of course, it would do quite as well if your city became big enough for you to run about in while still keeping your natural size—but it is somehow not really so cosy to think of.

"IMAGINARY COUNTRIES": A CURIOUS CHILD'S PLAY

By HAPGOOD MOORE

YOU are familiar with the "Imaginary Playmates" that other children invent. Did you ever hear of their devising Imaginary Countries?

The children, John and Mary, are twins. They live in Ireland ("oh, 'tis the land of fairies and wondrous wishing-wells").

At five John began to "make up things" about an imaginary "Lucy," who usually came to play with them about teatime. At six and a half the two conceived an imaginary family, which varied in size, but was always numerous. One day John was writing a letter to his grandmother, mostly about these children and their ages. He wrote part of it one afternoon, and the next day when he was going to finish it, he remarked: "Two more babies have been born since I wrote this, so I had better tell Grannie."

John's Political Ideas

When they were eight the family was thought of in connection with an imaginary farm. At nine the imaginary country came into being. Here again John led the way, because his knowledge of maps and geography was greater than that of his sister. His countries have varied a good deal in size and character. Just now John has two countries—one an island in the Pacific Ocean, the other "one of the stars," which is reached by an airplane from the South Pole.

John's country was at first an empire, but after he had listened to some remarks about presidents, it became a republic. The president has, however, not yet been chosen, because

John thinks that if a free election were held each one will want to be president, and hence each will vote for himself. Once the people were very warlike, and John was prepared to describe some of their battles vigorously. But lately John has been converted to pacifism, and permanent peace has been declared.

Mary's Lighter Fancy

It is interesting to note the different viewpoints of brother and sister. John, as we have said, always leads, and is much more thorough and painstaking. But Mary's fancy is always ready to be awakened, and her conceptions are always lighter and more imaginative. For instance, it was she who suggested the addition of giants to the population, and who placed them in caves and underground tunnels. She, too, is the one who has created an imaginary language and has worked out a laborious dictionary, in which John is much interested, but to which he has contributed little.

John is more prolific, but more prosaic. He is fond of names and boundaries. He makes street plots and even rainfall maps. He is interested in providing gardens and parks, a church, and a club-house where the people can dance and hear music.

The Land of Perpetual Life

All this is more or less what would be expected in children, just beyond the fairy-tale and doll period, who are fond of books and who have several grown-up friends. But there was one incident that had a certain beauty and pathos as indicating some deeper current of feeling. This came from John.

People in his country do not die unless they want to. When they think they want to die they become ill and remain ill for a time, so that they may think it over and be quite sure they know their own minds. Some of these finally choose to live, and these get well at once. Others are still determined to die, and proceed to do so. But here is the significant part: Even after they have been cremated and buried, they may come to life again if at any later period they choose to.

PLAYING IN THE SAND

SAND is the only indestructible toy there is. You cannot break it, wear it out, spoil it or even lose it. It is almost impossible to steal it. If it gets sunlight now and then it is perfectly sanitary.

It is particularly agreeable to children's use because they can play with it with their legs crossed. Those chair-inhabiting animals, the adults, do not realize how uncomfortable it is to a child to use his legs as the hanging fringe to a chair. Tailors and Turks are the only folks who sit as mankind was intended to sit.

Grown folks are mistaken when they say that the reason children love to play in the sand is because "they like dirt." While they have no special antipathy to dirt when it gathers naturally, it is not the dirtiness of sand that they like but the fact that it is something they can work with. As Joseph Lee says, prettily: "The hands are the heart's live wire." So the child rejoices in a substance so light, so plastic, and so "open-minded."

The first use of sand that seems to delight a baby, after he learns not to put it into his mouth, is to hide in it. The mystery of being unable to see his buried hand or leg gives him an unexplained delight. The hand is perhaps a hibernating rabbit, the fingers the tiny bunnies. To put sand in bags or bottles is a similar pleasure, the sense of controlling it being an added accomplishment.

Why a child will continue to fill and empty a pail or an old tomato can with sand for an entire morning with placid joy is something no adult has been able to fathom. It seems to be restful to the nerves, but he doesn't get ahead any. Infants are not anxious to "get ahead."

When the small boy comes to the stage where he only empties the sand on his hair or throws it at passers-by he

needs a little guidance. Alas, no plaything is a perfect self-starter.

A sand sieve, made by punching holes with a nail in a tin box-cover, seems to add an entirely new aspect to the situation. A sand-mill may be bought for 35 cents, which has a wheel that may be eternally turned by the action of falling sand. Hollow tin figures of houses, trees, etc., with which to make miniature villages, may be purchased for a dollar a dozen. There is a box of wooden letters and figures, each about four inches square, for $2 a set.

The homely things are just as good. It does not hurt the cooky mold to use it in the sand-pile, and the nursery blocks and the kindergarten beads are already at hand.

The first modeling experiments of children with sand are simplicity itself. They just dig holes and build smooth mounds, accompanying the same with a peaceful back-and-forth motion and a crooning sound suggestive of incantation. The holes are probably to find the water in, and the mounds are what the hollow of the hand shapes when it moves lovingly over the material. The second stage is tunnels, especially under the mound or between two neighborly ones, called "houses." Bridges, precarious indeed in duration, are about as far as childish sculpture would naturally go.

My best memory of sand play is the gravity railroads we used to make along the edge of a gravel bank, sending marbles and spools shooting down winding grooves from the top. We had to leave a sentinel to guard our handiwork while the rest of us went home to dinner.

They are even using sand in Sunday school. I know some boys ten years old who, one day when their teacher was absent, pleaded, "Can't we go back into the primary room to-day? We never had such work when we were kids." The "work" was the construction of the hilltop of Bethlehem, with stable and manger complete. It is a pretty, fascinating prospect that will send big boys back to be companions of the babies.

So here perhaps is your resource for a home vacation.

BOTTLE DOLLS

How to Make Them and How to Play with Them

By WILLIAM BYRON FORBUSH

A FEW months ago I first heard of a little old lady who had invented a new kind of play for children. It was play with Bottle Dolls.

A friend of mine was staying over night in a small town in Kansas. Somebody who learned that she was interested in young people began to tell her about Mary Lowe, who used to live there, and who was a wizard with children. You know how weary most of us are of the "genius" who inhabits every village. So my friend manifested but a languid interest. After supper, however, some of the children came to her room bringing some of their dolls. They engaged in some lively story-playing, and after my friend had been reminded once more that it was three years since any of them had seen Mary Lowe and that they had gone on telling her stories and making up new ones ever since, she began to sit up and take notice.

What kind of play was this that should engross all the small folks of a village with no adult to inspire or make suggestions, and that should wax rather than wane as the months went by? To make the story short, she came East, announcing that she had found a Great Educational Discovery.

Bottle Dolls are older than Mary Lowe of Salina, Kansas. I have since learned that they were used by Italian children in the sixteenth century. They do not differ in principle from the gourd-dolls that have been played with always by children, white and black, down South.

But Mary Lowe does seem to have found a new kind of play.

There are a number of elements to this play. There is the handicraft of making them. There is the coöperation of sharing them. But the main thing is that the dolls are not used as dolls after all, but as characters in a mimic world, acting out real situations. They may be defined as chessmen used for playing the game of life.

A Bottle Doll is not cuddlesome. One does not rock it to sleep or feel concerned about its health. It does not appeal particularly to the maternal instinct. This may explain why boys play with them as eagerly as do girls. These dolls are considered as having distinct characters, and the feeling that children have toward them is that of respect for personalities.

How to Make Bottle Dolls

It is now time to tell how Bottle Dolls are made. The only materials required are various small sizes of empty bottles, white cotton cloth, a little cotton batting for filling, scraps of paper and cloth for garments, and some string, glue, pen, and ink. Set a bottle before you, then take a square piece of cloth large enough to make a head and shoulders the size the bottle suggests. Make the heads of different shapes. Fill the rest of the cloth with cotton enough to form shoulders, tie the ends of the cloth about the neck of the bottle. Baste over all but the head a strong paper. Now clothe in paper or cloth, according to notion. Arms can be omitted if something is draped about the shoulders to give the suggestion that arms are there. With pen sketch eyes, nose, and mouth.

How to Arrange the Dolls

The best basis for the "kingdom" is a dining-room table, or any raised surface about six feet by three. The idea of the kingdom placed on the floor does not seem to give satisfaction. There is a sort of inconsistency about it. The child feels too large for the little world at his feet. But when the mimic world is placed on the table the idea of its own completeness is unmixed with the bigness of the child's person.

Suggestions for Moving Dolls and Arranging for a Story

Use twigs for trees, and place them in spools, wrapped in green. They may stand where you want them.

A collection of toy-animals should be called for from the children, who will take more interest if they are a part of the little world.

The toys must fit the dolls in size.

Make it a point to have everything that can be procured to fit any story. If a fire is needed where it can be seen, use red and gilt paper. If a fence is spoken of, make a fence of toothpicks.

If a figure needs disguising for a time, cut a half circle of cloth, cut the neck out of the center of the straight side and pin on the figure; then twist a bit of tissue paper about the head to form hat and bonnet.

When a "store" is needed, pin a straight cloth above the house and print the name on it. If store and house both, then have one in stock, and be up to date.

When a story tells of the inside of a house, place toothpicks to form plan of the house, with one or more rooms. If a figure must go upstairs, lift it quickly and place in the next room. This seems realistic. When introducing a character, place it in the middle of the space, holding by thumb and finger at its back, and have it face the audience whenever possible.

Do not place a thumb over its face when holding it. Some do.

Do not read a story and use the dolls at the same time.

Make dolls move in the center space whenever possible. Anything may be moved on the table to another position.

When hats are adjustable on dolls, remove them sometimes.

When, in being moved through space, a doll knocks another out of place, have it excuse itself.

When a figure is to lift or hold any article, hold the object so that it seems to be held by the doll. When anything is thrown, this must be done the same way.

You begin to see the vividness of this kind of play. What is taking place mentally is very interesting. The child is in a society of many imaginary companions to whom he lends real attributes and powers. Since these characters are constant, but their adventures vary, he can and does take these mimic friends with him day after day into every story and game he wishes to play.

Mrs. Lowe has made bottle-doll play even more fascinating by planning for accessories and scenery. Mrs. Lowe's boats were made of tiny boxes, also her sleighs, wagons, and trains of cars. She said it did not detract from their value when wagons that were used to bring a load of merrymakers to grandma's were turned upside down to serve as their table to eat from. It will add much to the interest of the play if simple backgrounds are built up out of common nursery material, such as table covers laid over blocks and boxes for undulating plains, using boxes to represent houses and furniture, and having carts, cars, and doll furniture take their silent part in building a scenic effect.

A river may be indicated by a bank made of paste-board boxes, laid zigzag, over a space in the center. A well may be made by placing square boxes as curbing. When figures must go into the river they are taken over the bank. If the object is to be unseen in the well, make the curbing high.

Once Mrs. Lowe turned a lovely night into a stormy one by turning off all the lights but a small candle in a doll house, and flashing the electric lights for lightning, while they pulled a strong box in the shape of a canoe filled with Indians toward a draw-bridge let down. "Upon that occasion nothing could be heard but the excited breathing of the club."

The opportunities for friendly coöperation in bottle-doll play are obvious. A group of children may volunteer to make a certain number of character dolls apiece till the set is completed, but a lively lot will usually not be content to own a set conjointly, and soon each child will determine to have a complete set of his own. The educative possibilities of constructing such a variety of characters are almost limitless.

KITCHEN PLAYTHINGS

ONCE there was a little boy of six who had for one of his Christmas presents a wonderful train, with tracks, switches, stations, and everything complete. His parents were very proud of their wisdom and generosity in selecting it, and after it was undone they spent an hour or so in setting it up and getting it to run properly. They were so absorbed that they did not notice that the boy was not in the room.

He was finally found in the kitchen with an old colored man, marshaling some lumps of coal in line for "soldiers" while the old negro described to him the movements of a battle. He didn't want his play ready-made. He wanted to discover play opportunities in simple materials.

Out in her kitchen every mother can find enough profitable playthings and activities to keep a child busy from infancy until he is old enough to go to school, without ever needing to visit a toy store.

What the Kitchen Furnishes

There is the water. The baby loves to dabble in it. The older child is proud to learn how to turn it on and off, and enjoys playing in the soapsuds.

There is the fire. The child likes to watch it kindled and see it burn. He likes to observe the mystery of turning on the gas and the electricity. He is exalted when he is permitted to master these operations himself.

There is the kitchen cabinet, with its arsenal of spoons and knives and dishes, its flour and sugar and spices.

The drawers and cupboards are a treasure, with their cans and covers, lids and openers, paper and strings, and the piece-bag.

Here is a list of materials found in any kitchen, and suggestions as to the playthings into which they may be transformed.

Food and Utensils

Salt—To take the place of a tiny sand table.

Flour—To make paste; dough for modeling.

Prunes and raisins—With cloves, to make a turtle; with toothpicks, to make a man.

Spoons—To dip sand, salt, or flour with; for drum sticks.

Cans—To make rattles; perforated, to make sand sieves; for barrels in a toy grocery store.

Soap—For soap bubbles; to use as a crayon for drawing on window panes or mirrors, and to hammer nails into.

Matches or toothpicks—Instead of kindergarten sticks.

Wood and Paper

Pasteboard boxes—Material for making paper furniture, checker boards, screens, fans, animals, dissected puzzles, card games, dominoes.

Cereal boxes—For toy houses, moving vans, lanterns.

Match boxes—For doll furniture.

Corks—To make toy furniture, dolls and boats.

Berry boxes—Material for toy fences and chicken coops; for toy wagons; "lumber" for doll furniture.

Paper bags—For masks; for balloons; for bags of wheat or corn for the miller; for dresses for dolls.

Skewers—With spools, for dolls' Maypoles; useful also in a sand table.

Clothespins—For dolls; for building block houses; for cannon and soldiers.

Corrugated paper—For toy washboards; stairs in a doll house; a band for an Indian head-dress.

Out of the Garden

Peas, cranberries, or rose haws—For necklaces.

Potatoes—To make dolls and toy animals.

Corn husks—For feathers in Indian head-dresses; to weave mats.

Corn cobs—To make rafts, fences, cornhouses, furniture (when dry).

Nuts—To make boats, animals.

Seeds—For stringing, for counters, for patterns.

Beans—To fill bean bags; to string; for checkers.

Left Overs

Wishbones—For dolls.

Tissue paper—For decorating costumes.

Wrapping paper—For scrapbooks.

Feathers—For making flowers and head-dresses.

Milk bottle tops—For wheels on toy wagons; for money; for checkers.

Egg shells—For dolls' cradles; for boats; to plant seeds in.

Spools—To make wheels, furniture, pulleys, Montessori insets.

Tin cracker boxes—To make toy stoves; to make wagons; to make cars.

Tinfoil—To make toy dishes, toy cutlery, toy money.

Buttons—To make buzzers, necklaces, wheels for toy carts, counters.

Jelly tumblers—For measures with the toy grocery store or sand table; for growing plants in.

A Kitchen Curriculum

A mother can make a whole curriculum of play for her child for each year, until he is old enough to go to school, out of the things to be found in her kitchen.

During the earliest years there are sense experiences among the sights, colors, sounds, and activities of the kitchen that are as varied and precious as Madame Montessori ever invented. Later, the home-made toys are simpler and more resourceful than mechanical ones. Still later the child can make his own toys and can find play as well as work in helping mother.

THE PORCH AS A PLAYGROUND

By THE EDITORS

ARE you making the best use of your home porch this summer? To us who live piled up on top of each other in flats the porch is the only regular access to outdoors. Yet some of us cliff-dwellers consecrate our postern gate, the back porch, to no better use than as a repository for the broom and oil can. So distinguished a personage as the librarian of Clark University asserts that the play-porch is as important and useful a feature of domestic architecture as the sleeping-porch. Not only is the porch oftentimes the coolest part of the dwelling, but by a bamboo curtain it may be made as private as any.

It does not require expensive or extensive furnishing. Of course, a hanging porch couch is a luxury, but it takes up room. A little swing is fully as pleasant to a little child. A slide is better, if a porch be on the ground floor. It acts as a substitute for the dear old cellar door. There is an adjustable one that the kindergarten houses sell, which father can make just as well, 9½ feet long and 4½ feet high at the top.

"We are so lucky at our house," a little girl told Joseph Lee. "You see, we have two barrels." A barrel is really a delightful plaything. You can ride it—or try to, and you can roll down inside it. It is almost as animated as a horse. Another simple thing that gives vent to this instinct for precarious footing is a humble 2x4. Fasten it to the floor of the porch, and the little children will toddle along it infinitely and learn balancing and body control. Large oblong blocks arranged in irregular pathways are even more beguiling.

Dry-goods boxes are staples for the porch playground. A nest of different sizes will build into a staircase for climbing. The biggest is just the material out of which to build the playhouse. It is much better than one you could buy for $75 all

papered and furnished and electric-lighted. With a large box for a table and small ones for stools, the children may tea-party to their hearts' content.

Pulleys and rope give a singular variety of pleasure. Penrod used his as an elevator to gain access to his retreat in the barn. They suggest the germ of all sorts of mechanical contrivances.

A modest seesaw is practicable. Ringtoss is a good porch game. But a broomstick livery stable has untold possibilities.

So much for the active plays. A sandbox, a box of big building blocks, and a tub to sail walnut shell boats in are the three best quiet amusements we can think of. There ought to be a portable screen, for separate "housekeeping" and for occasions when two small children wish to be ceremonious—or to quarrel. Another use for a large flat box is as the stage of a toy theater, with bottle-doll actors, but the window-sill for a platform and the window curtain that may be drawn between the scenes is even more delightful—if somebody is willing to drive the flies out of the kitchen afterward.

No single plaything will give more lasting pleasure than a blackboard. It is the handiest, biggest, and most simple medium for picture writing. A surface of cloth mounted on a roller can be bought for very little.

If we were writing about porch housekeeping we would speak of the baby-basket or baby-pen, varieties in comfortable porch-chairs, and how to connect the washer, the ironing board, the gas-plate and the chafing dish, so that the whole family may live, move, and have their being outside.

If some of these things are done not only may the mother work with greater comfort, but she may, with a few inexpensive and homely devices, keep her group of play-fellows safely and happily around her all summer.

HOME AMUSEMENTS FOR EVERYBODY

INDOOR GAMES

Baseball Buzz

THIS is the old game of buzz, played in imitation of baseball. In buzz, a number is selected, which, with its multiple, is not to be repeated as a company of players count in turn the numbers from 1 up, but instead of which "buzz" is to be said. If 4 be the number, the players, seated in a circle, will say: "1, 2, 3, buzz, 5, 6, 7, buzz," etc. In this game, the players, who may be eighteen or less, are on two even sides. The chairs, for one side, are arranged in relative position, like the diamond of a ball field. The other side is seated in a row in a position corresponding to the batters' bench. The man at the bat goes and stands at the "plate." The numbers are now repeated in turn down the bench and around the bases and field, the "buzz" number being selected for each inning by the side at bat. If one of the sides in the field makes an error, the batter takes the next base until he has made a run, which is scored. Then another batter takes his place. If the batting side makes an error, the batter is out, and when three are out the sides exchange places.

Tongue Twisters

A very interesting as well as successful exercise for gaining flexibility of utterance is the so-called "tongue twister." The following are good examples:

He built an icehouse near his own nice house.
Eight great, gray geese were gazing gayly into Greece.
Some sell sea-shells. Does she sell sea-shells?
He sawed six long, slim, sleek, slender saplings.
I found baths, cloths, laths, moths, sheaths, and wreaths.
Hugo's heroic act aided Hiram's helplessness.
How horribly Herbert hurt his head at honest Henry's house!

Rollo, rioting uproariously, rushed rashly round the rough roof.

By chance Charles changed the cheap chamber stairs.

James, the jailer, judged John, the joker, justly.

Selfish Silas, with short, shrill shrieks, shouts ashore saucily.

Seated on shore, she sees ships with shining sails on the shimmering sea.

Through the thin cloth the thief thrusts thorns.

Theophilus Thistle, the successful thistle sifter, sifted a sieve full of unsifted thistles. If Theophilus Thistle, the successful thistle sifter, sifted a sieve full of unsifted thistles, where is the sieve full of unsifted thistles that Theophilus Thistle, the successful thistle sifter, sifted?

Kaleidoscope

Four or more of the players stand in front of the rest, who are seated. Each player who is standing is given the name of some city so that those who are seated may know what city each one represents. Those seated close their eyes or, better, turn about and look the other way. The ones standing then re-arrange their line so that each player has a new position. Those seated now open their eyes and (one at a time) are asked to name what city each one represents. This will serve as a test of observation and memory.

Instead of names of cities, the names of countries, lakes, rivers, or other names in geography may be used. Names in history, names of authors, titles of books, names of birds, and of other objects in nature study or other branches are also available. However, only one class of names should be used at a time.

Prince of Paris

A leader is chosen, who stands before the rest of the players and says, "The Prince of Paris has lost his hat. Did you find it, Number three, sir?" Number Three is to jump to his feet and say, "What, sir? I, sir?" The leader answers, "Yes, sir! you, sir."

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PLEASANT PICTURES OF CHILD LIFE—I.

Number Three, "Not I, sir."
Leader, "Who then, sir?"
Number Three, "Number Five, sir."
Number Five jumps up and says,
"What, sir? I, sir?"
Leader, "Yes, sir! you, sir."
Number Five, "Not I, sir."
Leader, "Who then, sir?"
Number Five, "Number Two, sir."

Number Two is to jump up immediately and say, "What, sir? I, sir?" The conversation then goes on as before. The leader tries to say, "The Prince of Paris has lost his hat" before the player whose number is called can jump up and say, "What, sir? I, sir?" If he succeeds the player in question must change places with him. Anyone who fails to say "sir" in the proper place must change places with the leader.

The game may be varied by having the players stand in a line and applying the rule that when a miss is made the player who misses must go to the foot of the line. In playing the game this way there is no exchange of places with the leader. The object of each one in the line is to be at the head when the game ends.

Imitation

A leader is chosen and the rest of the players stand facing him. The leader goes through various motions, such as splitting wood, sawing wood, washing clothes, wringing clothes, hopping, jumping, etc., saying with each kind of action, "Do this!" or "Do that!" When he says, "Do this!" the rest of the players are to imitate him; when he says "Do that!" they are not to do so. Any player who imitates the action at the wrong time or fails to do so at the right time is out of the game. The game continues till only one player and the leader remain. The player remaining becomes the next leader.

Bird Catcher

The children sit or stand in a circle, with a "catcher" in the middle. Each child is given the name of some bird. The

leader tells a story orally, or reads it, which occasionally brings in the name of a bird. At the mention of a bird the player assigned its name quickly raises his hands and brings them down again. When the owl is mentioned (no one is given this name) all place hands behind the back and hold them there until another bird is mentioned. The catcher tries to seize a hand whenever it is moved. A player whose hand is caught or who does the wrong thing must change places with the catcher.

The Minister's Cat

This game is very similar to that of "I love my love." Each of the players must describe the minister's cat, going right through the alphabet to do so. "The minister's cat is an *angry* cat," says one; "an *anxious* cat," says another; and so on until everyone has used an adjective beginning with "A." Then they take the "B's." "The minister's cat is a *big* cat," and so on.

The leader of the game must see that no one hesitates for a word. If anyone should take longer than half a minute he must pay a forfeit.

Who Is He?

One of the players describes some celebrated person by giving four traits in his character, personal appearance, etc. For instance, he could say: "He was a man of iron will, a great orator, wore remarkable collars, is dead." The audience would have little difficulty in recognizing William E. Gladstone. The players are only allowed one guess each, for every other guess they must pay a forfeit.

Twenty Questions

One person goes out of the room and the rest of the players choose a subject which he must guess by asking not more than twenty questions. If he cannot guess it he must pay a forfeit and go out of the room again; but if he guesses it correctly he receives a good mark for every question under the twenty which

he might have asked. For instance, if he guesses the subject after asking ten questions he receives ten marks; if he has asked fifteen questions he receives five good marks. The player who receives the greatest number of good marks has won the game, and receives the prize if one is given.

Cross Questions and Crooked Answers

To play this game it is best to sit in a circle, and until the end of the game no one must speak above a whisper.

The first player whispers a question to his neighbor, such as: "Do you like roses?"

This question now belongs to the second player, and he must remember it.

The second player answers: "Yes, they smell so sweet," and this answer belongs to the first player. The second player now asks his neighbor a question, taking care to remember the answer, as it will belong to him. Perhaps he has asked his neighbor, "Are you fond of potatoes?" And the answer may have been, "Yes, when they are fried!"

So that the second player has now a question and an answer belonging to him, which he must remember.

The game goes on until every one has been asked a question and given an answer, and each player must be sure and bear in mind that it is the question he is *asked*, and the answer his *neighbor* gives, which belong to him.

At the end of the game each gives his question and answer aloud, in the following manner.

"I was asked: 'Do you like roses?' and the answer was: 'Yes, when they are fried!'"

The next player says: "I was asked: 'Are you fond of potatoes?' and the answer was: 'Yes, they are very pretty, but they don't wear well.'"

Spin the Platter

This is a game which almost any number of children can play.

The players seat themselves in a circle, and each takes the name of some town, or flower, or whatever has been previously agreed upon. One of the party stands in the middle of the circle, with a tin plate, or waiter, places it upon its edge, and spins it, calling out as he does so the name which one of the players has taken. The person named must jump up and seize the plate before it ceases spinning, but if he is not very quick the plate will fall to the ground, and he must then pay a forfeit. It is then his turn to spin the platter.

The Traveler's Alphabet

The players sit in a row and the first begins by saying, "I am going on a journey to Athens," or any place beginning with A. The one sitting next asks, "What will you do there?" The verbs, adjectives, and nouns used in the reply must all begin with A; as "Amuse Ailing Authors with Anecdotes." If the player answers correctly, it is the next player's turn; he says, perhaps: "I am going to Boston." "What to do there?" "To Bring Back Bread and Butter." A third says: "I am going to Constantinople." "What to do there?" "To Carry Contented Cats.

Any one who makes a mistake must pay a forfeit.

This and That

A confederate is necessary for this trick. The one performing the trick goes out of the room and the confederate agrees with the audience to touch a certain article. The person outside is recalled and his confederate begins to question him. "Did I touch this music-book?" "No." "Did I touch this table?" "No." "Did I touch this knife?" "No." "Did I touch that fork?" "Yes." The secret consists in saying the word "*that*" before the article touched, instead of "*this.*"

Battledore and Shuttlecock

Can be played by quite young children of both sexes, and is equally adapted to "children of a larger growth." By

increasing the size and weight of the shuttlecock, and substituting heavy wooden battledores for the light, leather-covered frames, the game of shuttlecock may be made to yield considerable exercise, as well as amusement. The simplest form is where there are two players, who strike the shuttlecock alternately, the one who first allows it to fall to the ground being the loser. But the game may be made more interesting, and at the same time amuse a greater number, when there are five or six players, who divide into sides, each having his number—one side, 1, 3, 5; the other, 2, 4, 6. The shuttlecock, first struck by 1, must then be hit by 2, and then, in turn by 3, 4, 5, and 6. The player who lets it drop is out, and the side of which one or more men are still in, after all their opponents have lost their positions, wins.

A good shuttlecock may be made, where there are no toy-shops to supply it, by cutting off the projecting ends of a common cotton-spool, trimming one end with a knife, and drilling holes in the flat surface left at the other, in which holes the feathers of quill pens are to be inserted. As for the battledores, we should think very little of the boy who could not, on an emergency, cut out a set from a bit of thin board, or the flat lid of a box, with the help of the big blade of his pocket-knife.

The French are great adepts at this game, and light battledores and shuttlecocks are wielded by them with great perseverance and considerable skill. There is one great advantage about this game, namely, that without requiring any great amount of strength, it thoroughly exercises every muscle of the player, and furnishes real exercise without producing exhaustion.

Buzz

This is a very old game, but is always a very great favorite. The more the players, the greater the fun. The way to play it is as follows. The players sit in a circle and begin to count in turn, but when the number 7 or any number in which the figure 7 or any multiple of 7 is reached, they say "Buzz," instead of whatever the number may be. As, for instance,

supposing the players have counted up to 12, the next player will say "13," the next "Buzz," because 14 is a multiple of 7 (twice 7)—the next player would then say "15," the next "16" and the next would of course say "Buzz" because the figure 7 occurs in the number 17. If one of the players forgets to say "Buzz" at the proper time, he is out. The game then starts over again with the remaining players, and so it continues until there is but one person remaining. If great care is taken the numbers can be counted up to 70, which, according to the rules before mentioned, would of course be called Buzz. The numbers would then be carried on as Buzz 1, Buzz 2, &c., up to 79, but it is very seldom that this stage is reached.

The Stage-Coach

The leader tells every member of the company to choose as a name some article connected with a stage-coach; the wheels, the horses, the whip, the bridle, etc., may be chosen. These the leader jots down on a piece of paper and then begins to tell a thrilling story. "The stage-coach left the old Stag Inn, amidst the thundering of the *horses*' hoofs and the cracking of the driver's *whip*." Some members will probably have chosen to be the horses, another the whip, and as their names are mentioned they must rise, twirl round and sit down again. Then the narrator continues: "For some miles all went well, then a *bridle* gave way (the bridle must rise and twirl round) and the driver put down the *reins*, jumped from his seat and ran to the *horses*' heads. It was found necessary to take the *horses* out of the *shafts* before the *stage coach* could proceed on its way." As each member's name is mentioned he must rise and twirl round; but when the stage-coach is mentioned every one must rise and change seats, when the narrator, who has been standing, tries to secure one. If he succeeds the person left out becomes narrator. The great point is for the narrator to tell such a thrilling story that the members forget to acknowledge the mention of their names, when they must pay a forfeit.

Drop the Handkerchief

A ring is formed by the players joining hands, whilst one child, who is to "drop the handkerchief," is left outside. He walks round the ring, touching each one with the handkerchief, saying the following words:

"I wrote a letter to my love,
But on my way, I dropped it;
A little child picked it up
And put it in his pocket.
It wasn't you, it wasn't you,
It wasn't you—but it *was you.*"

When he says, "It *was you,*" he must drop the handkerchief behind one of the players, who picks it up and chases him round the ring, outside and under the joined hands, until he can touch him with the handkerchief. As soon as this happens, the first player joins the ring, while it is now the turn of the second to "drop the handkerchief."

Magic Music

One of the players is sent out of the room, and the rest then agree upon some simple task for her to perform, such as moving a chair, touching an ornament, or finding some hidden object. She is then called in and some one begins to play the piano. If the performer plays very loudly the "seeker" knows that she is nowhere near the object she is to search for. When the music is soft, then she knows she is very near, and when the music ceases altogether, she knows that she has found the object she was intended to look for.

The Sea-King

This game can be played by any number of children. They proceed by first choosing one of the party to act as the Sea-King, whose duty it is to stand in the center of a ring, formed by the players seating themselves round him. The circle should be as large as possible. Each of the players having chosen the name

of a fish, the King runs round the ring, calling them by the names which they have selected.

Each one, on hearing his name called, rises at once, and follows the King, who, when all his subjects have left their seats, calls out, "The sea is troubled," and seats himself suddenly. His example is immediately followed by his subjects. The one who fails to obtain a seat has then to take the place of King, and the game is continued.

"I Apprenticed my Son"

The best way of describing this game is to give an illustration of how it is played. The first player thinks of "Artichoke," and commences. "I apprenticed my son to a greengrocer, and the first thing he sold was an A."

2nd player: "Apple?"—"No."
3rd player: "Almonds?"—"No."
4th player: "Asparagus?"—"No."
5th player: "Artichoke?"—"Yes."

The last player, having guessed correctly, may now apprentice his son. No player is allowed more than one guess.

The Dwarf

This is a most amusing game if well carried out. The two performers must be hidden behind two curtains in front of which a table has been placed.

One of the performers slips his hands into a child's socks and little shoes. He must then disguise his face, by putting on a false moustache, parting his eyebrows, sticking pieces of black court plaster over one or two of his teeth, which will make it appear as though he has lost several teeth. This, with a turban on his head, will prove a very fair disguise. The second performer must now stand behind the first and pass his arms round him, so that the second performer's hands may appear like the hands of the dwarf, whilst the first performer's hands make his feet. The figure must, of course, be carefully dressed, and the body of the second performer hidden behind the curtains.

The front player now puts his slippered hands upon the table and begins to keep time, while the other performer follows suit with his hands.

The Dwarf can be used either to tell fortunes, make jokes, or ask riddles, and if the performers act their parts well, the guests will laugh very heartily.

Puss in the Corner

This game is really for five players only, but, by a little arrangement, six or seven children can take part in the fun.

Four players take their places in the different corners of the room, whilst the fifth stands in the middle. If a greater number of children wish to play, other parts of the room must be named "corners," so that there is a corner for every one.

The fun consists in the players trying to change places without being caught; but they are bound to call "Puss, puss," first, and to beckon to the one they wish to change with. Directly they leave their corners, the player in the center tries to get into one of them.

When the center player succeeds in getting into a corner, the one who has been displaced has to take his place in the middle of the room.

Blind Man's Buff

In the olden times this game was known by the name of "Hoodman Blind," as in those days the child that was chosen to be "blind man" had a hood placed over his head, which was fastened at the back of the neck.

In the present day the game is called "Blind Man's Buff," and very popular it is among young folk.

Before beginning to play, the middle of the room should be cleared, the chairs placed against the wall, and all toys and footstools put out of the way. The child having been selected who is to be "Blind Man" or "Buff," is blindfolded. He is then asked the question: "How many horses has your father got?" The answer is "Three," and to the question: "What

color are they?" he replies: "Black, white, and gray." All the players then cry: "Turn round three times and catch whom you may." "Buff" accordingly spins round and then the fun commences. He tries to catch the players, while they in their turn do their utmost to escape "Buff," all the time making little sounds to attract him. This goes on until one of the players is caught, when "Buff," without having the bandage removed from his eyes, has to guess the name of the person he has secured. If the guess is a correct one the player who has been caught takes the part of "Buff," and the former "Buff" joins the ranks of the players.

Simon Says

Seat yourselves in a circle and choose one of the company to be the leader, or Simon. His duty is to order all sorts of different things to be done, the funnier the better, which must be obeyed only when the order begins with "Simon says." As, for instance, "Simon says: 'Thumbs up!'" which, of course, all obey; then perhaps comes: "Thumbs down!" which should not be obeyed, because the order did not commence with "Simon says."

Each time this rule is forgotten a forfeit must be paid. "Hands over eyes," "Stamp the right foot," "Pull the left ear," etc., are the kind of orders to be given.

The Schoolmaster

This is always a favorite game. One of the players is chosen schoolmaster, and the others, ranged in order in front of him, form the class. The master may then examine the class in any branch of learning. Suppose him to choose geography, he must begin with the pupil at the head of the class, and ask for the name of a country or town beginning with A. If the pupil does not reply correctly before the master has counted ten, he asks the next pupil, who, if he answers rightly—say, for instance, "America," or "Amsterdam," in time, goes to the top of the class. The schoolmaster may go on in this way through

the alphabet either regularly or at random, as he likes. Any subject—names of kings, queens, poets, soldiers, etc.—may be chosen. The questions and answers must follow as quickly as possible. Whoever fails to answer in time, pays a forfeit.

Dumb Crambo

Divide the company into two equal parts, one half leaving the room; the remaining players should then select a word, which will have to be guessed by those outside the door. When the word has been chosen—say, for instance, the word "will"—the party outside the room are told that the word they are to guess rhymes with "till." A consultation then takes place, and they may think that the word is "ill." The company then enter and begin to act the word "ill," but without speaking a word. The audience, when they recognize the word that is being performed, will immediately hiss, and the actors then retire and think of another word.

Thus the game goes on until the right word is hit upon, when the company who have remained in the room clap their hands.

The audience then change places with the actors.

Hiss and Clap

This is an excellent party game. One of the company goes outside the room, while the remainder of the players decide among themselves which of them he shall kneel to. When this is settled upon, the person who is outside is allowed to enter, and he kneels in front of whom he thinks is the right one. If he should make a correct guess, the company clap their hands, and the person to whom he knelt goes outside. If, however, the guess is an incorrect one, the company hiss loudly, and the guesser has to go outside, come back, and try again. Of course, it will make more amusement if when a boy is sent outside the room a girl be chosen as the person to whom he has to kneel; and the opposite if a girl be outside the room.

The Adventurers

This is a very good game and will combine both instruction and amusement. The idea is that the company imagines itself to be a party of travelers who are about to set out on a journey to foreign countries. A good knowledge of geography is required, also an idea of the manufactures and customs of the foreign parts about to be visited.

It would be as well, if not quite certain about the location of the part, to refer to a map.

A place for starting having been decided upon, the first player sets out upon his journey. He tells the company what spot he intends to visit (in imagination) and what kind of conveyance he means to travel in.

On arriving at his destination, the player states what he wishes to buy, and to whom he intends to make a present of his purchase on returning home.

This may seem very simple, but it is not so easy as it appears.

The player must have some knowledge of the country to which he is going, the way he will travel, and the time it will take to complete the journey.

To give an instance, it will not do for the player to state that he is going to Greenland to purchase pineapples, or to Florida to get furs, nor will it do for him to make a present of a meerschaum pipe to a lady, or a Cashmere shawl to a gentleman.

More fun is added to this game if forfeits are exacted for all mistakes.

The game continues, and the second player must make his starting point from where the first leaves off.

Of course all depends upon the imagination or the experience of the player: if he has been a traveler or has read a good deal, his descriptions should be very interesting.

"Our old Grannie doesn't like Tea"

All the players sit in a row, except one, who sits in front of them and says to each one in turn; "Our old Grannie doesn't like T; what can you give her instead?"

Perhaps the first player will answer, "Cocoa," and that will be correct; but if the second player should say, "Chocolate," he will have to pay a forfeit, because there is a "T" in chocolate. This is really a catch, as at first everyone thinks that "tea" is meant instead of the letter "T." Even after the trick has been found out it is very easy to make a slip, as the players must answer before "five" is counted; if they cannot, or if they mention an article of food with the letter "T" in it, they must pay a forfeit.

Rule of Contrary

This is a simple game for little children. It is played either with a pocket-handkerchief, or, if more than four want to play, with a table cloth or small sheet.

Each person takes hold of the cloth; the leader of the game holds it with the left hand, while with the right he makes pretence of writing on the cloth, while he says: "Here we go round by the rule of contrary. When I say, 'Hold fast,' let go; and when I say, 'Let go,' hold fast."

The leader then calls out one or other of the commands, and the rest must do the opposite of what he says. Any one who fails must pay a forfeit.

Consequences

One of the most popular games at a party is certainly "Consequences"; it is a very old favorite, but has lost none of its charms with age. The players sit in a circle; each person is provided with a half sheet of notepaper and a pencil, and is asked to write on the top—(1) one or more adjectives, then to fold the paper over, so that what has been written cannot be seen. Every player has to pass his or her paper on to the right-hand neighbor, and all have then to write on the top of the paper which has been passed by the left-hand neighbor (2) "the name of the gentleman"; after having done this the paper must again be folded and passed on as before; this time must be written (3) one or more adjectives; then (4) a lady's name; next (5) where they

met; next (6) what he gave her; next (7) what he said to her; next (8) what she said to him; next (9) the consequence; and lastly (10) what the world said about it.

Be careful that every time anything has been written the paper is folded down and passed on to the player on your right.

When every one has written what the world says, the papers are collected and one of the company proceeds to read out the various papers, and the result may be something like this:

(1) The horrifying and delightful (2) Mr. Brown (3) met the charming (4) Miss Philips (5) in Westminster Abbey; (6) he gave her a flower (7) and said to her: "How's your mother?" (8) She said to him: "Not for Joseph;" (9) the consequence was they danced the hornpipe, and the world said: (10) "Just what we expected."

Earth, Air, Fire, and Water

To play this game seat yourselves in a circle, take a clean duster or handkerchief, and tie it in a big knot, so that it may easily be thrown from one player to another. One of the players throws it to another, at the same time calling out either of these names: Earth, Air, Fire, or Water. If "Earth" is called, the player to whom the ball is thrown has to mention something that lives on the earth, as lion, cat; if "Air" is called, something that lives in the air; if "Water," something that lives in the water; but if "Fire" is called, the player must keep silence. Always remember not to put birds in the water or animals or fishes in the air; be silent when "Fire" is called, and answer before ten can be counted. For breaking any of these rules a forfeit must be paid

"Animal, Vegetable, or Mineral?"

This is a capital game for a large party, for it is both instructive and amusing. One player is selected who has to guess what word or sentence the remainder of the company has chosen. He goes out of the room, and when the subject has been decided upon, returns and asks a question of each of the company in

turn. The answer must be either "Yes" or "No," and in no case should more words be used, under penalty of paying a forfeit. The first important point to be found out is whether the subject is "Animal," "Vegetable," or "Mineral." Supposing, for instance, the subject chosen is a cat which is sleeping in the room by the fire, the questions and answers might be like the following:—"Is the subject chosen an animal?" "Yes." "Wild animal" "No." "Domestic animal?" "Yes." "Common?" "Yes." "Are there many to be seen in this town?" "Yes." "Have you seen many this day?" "Yes." "In this house?" "No." "Have you seen many in the road?" "Yes." "Do they draw carts?" "No." "Are they used for working purposes?" "No." "Is the subject a pet?" "Yes." "Have they one in the house?" "Yes." "In this room?" "Yes." "Is it lying in front of the fire at the present time?" "Yes." "Is the subject you all thought of the cat lying in front of the fire in this room?" "Yes." The subject having been guessed, another one is chosen and the game proceeds.

Crambo

One of the party leaves the room, and on his return he is asked to find a word which has been chosen by the other players in his absence, and in order to help him another word is mentioned rhyming with the word to be guessed. Questions may then be asked by the guesser, and the players must all introduce, as the final word of their answer, another word rhyming with the word chosen. For instance, suppose the word "way" is selected. The guesser would then be told that the word chosen rhymes with "say." He might then ask the first one of the party: "What do you think of the weather?" and the answer might be: "We have had a lovely *day*." The second question might be: "Have you enjoyed yourself?" and the answer might be: "Yes; I have had lots of *play*." The game would proceed in this way until the guesser gave the correct answer or one of the party failed to give the proper rhyme, in which case the latter would then be called upon to take the place of guesser.

Hunt the Slipper

The players seat themselves in a circle on the floor, having chosen one of their number to remain outside the circle. The children seated on the floor are supposed to be cobblers, and the one outside is the customer who has brought his shoe to be mended. He hands it to one of them, saying:

"Cobbler, cobbler, mend my shoe;
Get it done by half-past two."

The cobblers pass the shoe round to each other as quickly as they can, taking care that the customer does not see which of them has it. When the customer comes to fetch it he is told that it is not ready. He pretends to get angry and says he will take it as it is. He must then try to find it, and the cobbler who has it must try to pass it to his neighbor without its being seen by the customer. The person upon whom the shoe is found must become the customer, whilst the customer takes his place in the circle on the floor.

Thought-Reading

This is a very good game, which always causes considerable amusement, and if skilfully carried out will very successfully mystify the whole company.

It is necessary that the player who is to take the part of thought-reader should have a confederate, and the game is then played as follows.

The thought-reader, having arranged that the confederate should write a certain word, commences by asking four members of the company to write each a word upon a piece of paper, fold it up in such a manner that it cannot be seen, and then to pass it on to him. The confederate, of course, volunteers to make one of the four and writes the word previously agreed upon, which is, we will suppose, "Hastings."

The thought-reader places the slips of paper between his fingers, taking care to put the paper of his confederate between the third and little finger; he then takes the folded paper from

A CHILDREN'S PARTY
From a Painting by H. Schwiering

between his thumb and first finger and rubs it, folded as it is, over his forehead, at each rub mentioning a letter, as H. rub, A rub, S.T.I.N.G.S., after which he calls out that some lady or gentleman has written "Hastings." "I did," replies the confederate.

The thought-reader then opens the paper, looks at it, and slips it into his pocket; he has, however, looked at one of the other papers.

Consequently he is now in a position to spell another word, which he proceeds to do in the same manner, and thus the game goes on until all the papers have been read.

"My Master Bids You Do as I Do"

For all those children who are fond of a little exercise no better game than this can be chosen. When the chairs are placed in order round the room the first player commences by saying: "My master bids you do as I do," at the same time working away with the right hand as if hammering at his knees. The second player then asks: "What does he bid me do?" in answer to which the first player says: "To work with one as I do." The second player, working in the same manner, must turn to his left-hand neighbor and carry on the same conversation, and so on until everyone is working away with the right hand.

The second time of going round the order is to work with two; then both hands must work; then with three; then both hands and one leg must work; then with four, when both hands and both legs must work; lastly with five, when both legs, both arms, and the head must be kept going. Should any of the players fail in keeping in constant motion a forfeit may be claimed.

Green Gravel

In this game the children join hands and walk round in a circle, singing the following words:

Green gravel, green gravel, your grass is so green,
The fairest young damsel that ever was seen.
I'll wash you in new milk and dress you in silk,
And write down your name with a gold pen and ink.
Oh! (Mary) Oh! (Mary) your true love is dead;
He's sent you a letter to turn round your head.

When the players arrive at that part of the song, "Oh, Mary!" they name some member of the company; when the song is finished the one named must turn right round and face the outside of the ring, having her back to all the other players. She then joins hands in this position and the game continues as before until all the players face outward. They then recommence, until they all face the inside of the ring as at first.

The Farmyard

This game, if carried out properly, will cause great amusement. One of the party announces that he will whisper to each person the name of some animal, which, at a given signal, must be imitated as loudly as possible. Instead, however, of giving the name of an animal to each, he whispers to all the company, with the exception of one, to keep perfectly silent. To this one he whispers that the animal he is to imitate is the donkey.

After a short time, so that all may be in readiness, the signal is given. Instead of all the party making the sounds of various animals, nothing is heard but a loud bray from the one unfortunate member of the company.

"How Many Nuts Do I Hold Here?"

One child takes a few small nuts between his hands, so that they rattle loosely when he shakes them. He must then strike his closed hands upon his knee and the other players guess, in turn, how many nuts he holds. The various guesses must be put down on paper, and when all have had a turn the first player opens his hands and shows how many nuts he holds. He must then pay to each who guessed correctly the number guessed; but those who guessed incorrectly must pay him.

Cock-Fighting

This is a most amusing game, and although only two boys can play at it at one time they will keep the rest of the company in roars of laughter. The two who are to represent the "cocks" having been chosen, they are both seated upon the floor.

Each boy has his wrists tied together with a handkerchief, and his legs secured just above the ankles with another handkerchief; his arms are then passed over his knees, and a broomstick is pushed over one arm, under both knees, and out again on the other side over the other arm. The "cocks" are now considered ready for fighting, and are carried into the center of the room, and placed opposite each other with their toes just touching. The fun now commences.

Each "cock" tries with the aid of his toes to turn his opponent over on his back or side.

The one who can succeed in doing this first wins the game.

It often happens that both "cocks" turn over at the same time, when the fight commences again.

The Spelling Game

Each player in this game has what are called three "lives," or chances. When the company is seated in a circle, the first player mentions a letter as the beginning of a word. The game is for each of the company, in turn, to add a letter to it, keeping the word unfinished as long as possible.

When a letter is added to the former letters and it makes a complete word, the person who completed it loses a "life." The next player then begins again.

Every letter added must be part of a word, and not an odd letter thought of on the spur of the moment. When there is any doubt as to the letter used by the last player being correct, he may be challenged, and he will then have to give the word he was thinking of when adding the letter. If he cannot name the word, he loses a "life"; but if he can, it is the challenger who loses.

This is an example of how the game should be played Supposing the first player commences with the letter "p"; the next, thinking of "play," would add an "l"; the next an "o," thinking of "plow"; the next person, not having either of these words in his mind, would add "v"; the next player, perhaps, not knowing the word of which the previous player was thinking, might challenge him, and would lose a "life" on being told the word was "plover." The player next in turn would then start a new word, and perhaps put down "b," thinking of "bat," the next, thinking, say, that the word was "bone," would add an "o," the next player would add "n"; the player whose turn it would now be, not wanting to lose a "life" by finishing the word, would add another "n"; the next player for the same reason would add "e," and then there would be nothing else for the next in turn to do but to complete the word by adding "t" and thus losing a "life."

It will be seen that there are three ways of losing a "life." First, the player may lay down a letter, and on being challenged be unable to give the word. Secondly, he may himself challenge another player who is not at fault. Thirdly, he may be obliged to add the final letter to a word, and so complete it.

This is a most amusing game for a large party, for as the different persons lose their three "lives" the players gradually dwindle down to two or three, when it gets very exciting to see who will be the last person left in, for he or she will be declared the winner.

The Ants and the Grasshopper

Lots are drawn in order to decide who shall be the grasshopper; the ants then seat themselves in a circle while the grasshopper writes on a piece of paper the name of a grain or food which a grasshopper might be supposed to like. He puts this in his pocket and then addresses the ants:

"Dear friends, I am very hungry: would any of you kindly give me some food?"

"I have nothing but a grain of barley," says the ant spoken to.

"Thank you; that is of no use to me," replies the grasshopper, and goes on to the next player. As soon as any one offers the grain of food which the grasshopper has written down the paper must be produced, and the one who guessed the word pays a forfeit and becomes grasshopper. If no one guesses the word the grasshopper pays a forfeit.

The game then goes on in the same way, except that a different question is asked on the second round.

"Neighbors," says the grasshopper, "I have eaten abundantly and would have a dance. Which would you recommend?"

A waltz, a polka, a quadrille, etc., are suggested, and when this question has gone the round the grasshopper asks what music he can dance to, and the ants suggest the music of the violin, the piano, cornet, etc. Then the grasshopper says he is tired of dancing and wishes for a bed, and the ants offer him moss, straw, grass, and so on, to lie upon.

"I should sleep very comfortably," the grasshopper says, "but I am in fear of being pounced upon by a hungry bird. What bird have I most reason to fear?" The ants answer: the rook, the lark, the cuckoo, etc.

When the game is ended the forfeits that have been lost must be redeemed.

Oats and Beans and Barley

All the children form a ring, with the exception of one player who stands in the center. The children then dance round this one, singing the first three lines of the verses given below. At the fourth line they stop dancing and act the words that are sung. They pretend to scatter seed; then stand at ease, stamp their feet, clap their hands, and at the words: "Turn him round," each child turns round.

They then again clap hands and dance round, and when the words: "Open the ring and send one in," are sung the center child chooses a partner, who steps into the ring, and the two stand together while the other children sing the remaining verse, after which the child who was first in the center joins the ring and the game is continued as before.

"Oats and beans and barley O!
Do you or I or any one know
How oats and beans and barley grow.

"First the farmer sows his seed,
Then he stands and takes his ease,
Stamps his foot and claps his hands,
And turns him round to view the land.

"Oats and beans and barley O!
Waiting for a partner, waiting for a partner.
Open the ring and send one in.
Oats and beans and barley O!

"So now you're married you must obey,
You must be true to all you say,
You must be kind, you must be good,
And help your wife to chop the wood.
Oats and beans and barley O!"

Sally Waters

This game can be played by any number of children. A ring is formed in which all join, with the exception of one little girl who kneels in the center of the ring. The children then dance round her, singing the following verses:

"Little Sally Waters, sitting in the sun
Crying and weeping for a young man.
Rise, Sally, rise, wipe off your eyes.
Fly to the East and fly to the West,
Fly to the very one that you love best."

When they come to the words, "Rise, Sally!" the child in the center rises and chooses another from the ring.

The next two lines are then sung, and the two children in the ring dance round and kiss.

Sally then joins the ring, the second child remaining in the circle, and the game is continued as before until all the players have acted the part of Sally.

Lubin Loo

This game can be played by any number of children. The players form a ring by clasping hands; they then dance round singing the first verse, which after the second verse serves as a chorus.

"Here we dance lubin, loo,
Here we dance lubin, light,
Here we dance lubin, loo,
On a Saturday night."

While singing the second verse, the children stop, unclasp their hands and suit their actions to the words contained in the verse.

"Put all your right hands in,
Take all your right hands out,
Shake all your right hands together,
And turn yourselves about."

Each child, while singing this, first stretches her right arm toward the center of the ring, then draws the same arm back as far as possible, next shakes or swings her right hand, and when the last line is sung she turns right round. The children then once more join hands, and commence dancing, at the same time singing the chorus. The game proceeds as before until all the verses have been sung. Here are the remaining verses:

"Here we dance lubin, loo,
Here we dance lubin, light,
Here we dance lubin, loo,
On a Saturday night.

"Put all your left hands in,
Take all your left hands out,
Shake all your left hands together,
And turn yourselves about.

Chorus:
"Here we dance lubin, loo," etc.

"Put all your right feet in,
Take all your right feet out,
Shake all your right feet together,
And turn yourselves about.

Chorus:
"Here we dance lubin, loo," etc.

"Put all your left feet in,
Take all your left feet out,
Shake all your left feet together,
And turn yourselves about.

Chorus:
"Here we dance lubin, loo," etc.

"Put all your heads in,
Take all your heads out,
Shake all your heads together,
And turn yourselves about.

Chorus:
"Here we dance lubin, loo," etc.

"Put all the little girls in,
Take all the little girls out,
Shake all the little girls together,
And turn yourselves about.

Chorus:
"Here we dance lubin, loo," etc.

"Put all the little boys in,
Take all the little boys out,
Shake all the little boys together,
And turn yourselves about.

Chorus:
"Here we dance lubin, loo," etc.

"Put all yourselves in,
Take all yourselves out,
Shake all yourselves together,
And turn yourselves about."

Chorus:
"Here we dance lubin, loo," etc.

Shouting Proverbs

This is rather a noisy game. One of the company goes outside the door, and during his absence a proverb is chosen and a word of it is given to each member of the company. When the player who is outside reënters the room, one of the company counts, "One, two, three," then all the company simultaneously shout out the word that has been given to him or her of the proverb that has been chosen.

If there are more players present than there are words in the proverb, two or three of them must have the same word. The effect of all the company shouting out together is very funny. All that is necessary is for the guesser to have a sharp ear; then he is pretty sure to catch a word here and there that will give him the key to the proverb.

Adjectives

A slip of paper and a pencil is given to each player, who must then write a number of adjectives upon it. The slips are collected and given to the principal player, who has undertaken to read out a short story, substituting the adjectives on the slips for those already in the story. The adjectives must be taken as they come and not picked out to suit the story. The result is sometimes very laughable; as for instance—"The *pretty* rhinoceros is a very *amiable* animal. It is very *attractive* in its habits, and lives near lakes or rivers. Its *delicate* skin is so *soft* that special bullets are needed to pierce it, etc."

The Forbidden Vowels

The players seat themselves and are questioned by the leader of the game and must answer without bringing in a word containing a forbidden vowel. Say the vowel "a" is forbidden, the leader asks—"Are you fond of playing the piano?" The answer, "Yes, very much," would be correct, as the words do not contain the letter "a." But if the answer were—"Yes, and I am fond of singing too," the speaker would have to pay a forfeit. Any vowel may be forbidden, or if the players choose to make the game very difficult, two vowels may be forbidden. Say "a" and "e" are forbidden, and the question is, "Will your father be late home?" "I do not know," would be a correct answer.

Blowing the Candle

Place a lighted candle on a table at the end of a room. Invite someone to stand in front of it, then blindfold him, make him take three steps backwards, turn round three times and then advance three steps and blow out the candle. If he fails he must pay a forfeit. It will be found that very few are able to succeed, simple though the test appears to be.

Capping Verses

The players are supplied with slips of paper and a pencil and every one writes a line of poetry, either original or from memory. Then the slips must be folded so that the line is hidden; but the last word of the line must be written over the fold. The slips are passed on, so that a different writer supplies the next line, which must rhyme with the last word of the previous line. Again the slips are passed on, a new line is written and passed on with the new rhyming word written on the fold. When the papers have gone the round of the company the slips are unfolded and the verses read out.

Question-Rhymes

Each player is provided with two slips of paper, on one he must write a question and on the other a noun. The papers are then collected and placed in two hats, or any suitable article, the questions in one, the nouns or answers in another.

Each player draws a question and a noun for himself, and must then write, in verse, an answer to the question, bringing in the noun.

Suppose the question and noun to be, "Do you like oysters?" "Carnations," the rhyme written might run like this:

Do I like oysters? Yes I do,
And I like carnations too.
The first are very good to eat,
The latter have an odor sweet.

Hunt the Whistle

The chief participator in this game must be ignorant of the trick about to be played. He is told to kneel down while a lady knights him, naming him "Knight of the Whistle." During the process someone fastens a small whistle to his coat tails by means of a piece of ribbon. He is then bidden to rise up and search for the whistle. The hunt begins; all the players com-

bine to deceive the searcher: they must blow the whistle whenever they can do so without being detected. When the searcher discovers the trick the game is, of course, at an end.

The Blind Postman

The game of the Blind Postman is one especially adapted for a large party. It is played as follows:

The postman is selected by lot, while the postmaster-general either volunteers his services, or he is elected by the company. The person on whom the unwished-for honor of enacting postman falls (it may be either a lady or a gentleman) is blindfolded; the remainder of the company meanwhile seating themselves round the room. The number of chairs is limited, so that there shall be one less than the number of players. The postmaster-general then writes the names of certain cities and towns on slips of paper, giving one to each person, so that they may remember by what name they are to answer. Should there be but few players, the names can be given orally. The postman is placed in the center of the room, and the postmaster-general takes up a position from which he can address the entire company. He commences the game by calling out "New York to Boston" (or any other places which he may select). The players bearing these names must instantly rise, and endeavor to change seats with each other; while the postman tries to capture one of them before they accomplish the change. Should he succeed he removes the bandage from his eyes, and takes the chair which his captive has vacated, while the latter is blindfolded and becomes postman in turn, in addition to paying a forfeit. Forfeits are also incurred by those who do not spring to their feet and endeavor to change seats with the town or city whose name is called in connection with their own. Forfeits are also demanded of those who, in their hurry to be in time, answer when their name has not been called. The confusion caused by these *contretemps* places many chances in the postman's favor. The postmaster-general may hold his appointment till the end of the game, but if he tires of his honors he may resign.

Honey Pots

For little ones there is scarcely a more popular game than "Honey Pots." Small children of three and four can be included in this game, but there should be two bigger children for the "Buyer" and the "Merchant." The children, with the exception of the Buyer and Merchant, seat themselves upon the floor of the room, with their knees raised and their hands clasped together round them. These children are called "Honey Pots." The Merchant and the Buyer then talk about the quality and quantity of the Honey, and the price of each Pot. It is agreed that the price to be paid shall be according to the weight of the "Honey" and the "Pot." The children are carefully "weighed" by raising them two or three times from the floor and swinging them by their arms, one arm being held by the Merchant and the other by the Buyer.

When the "Honey Pots" are all weighed the Buyer says he will purchase the whole of the stock, and asks the Merchant to help him carry the Pots home. Then the Merchant and the Buyer carry the children one by one to the other end of the room.

When all are safely at the Buyer's house, the Merchant goes out of the room, but suddenly returns and says to the Buyer: "I believe you have carried off my little daughter in one of the Honey Pots." The Buyer replies: "I think not. You sold me all the Pots full of Honey, but if you doubt me you can taste them."

The Merchant then pretends to taste the Honey, and after having tried two or three Pots exclaims: "Ah! this tastes very much like my little daughter." The little girl who represents the Honey Pot chosen by the Merchant then cries out: "Yes, I am your little girl," and immediately jumps up and runs away, the Buyer at the same time endeavoring to catch her.

When the one Honey Pot runs away all the others do the same, the Buyer catches whom he can, and the game recommences.

"They Can Do Little Who Cannot Do This, This, This"

This game is played thus: The party seat themselves in a circle, or round the fire; the first person then takes a stick in the right hand, and, knocking the floor, says, "They can do little who cannot do this, this, this." Then passing the stick from the right to the left hand, presents it to the next person. The little folks think the catch is in the number of knocks, or in the words spoken, when it is merely in taking the stick in the right hand, and passing it with the left hand to the next person. A forfeit must be paid for each mistake.

Malaga Raisins

The game is very amusing, and is almost sure to bring in a large number of forfeits for the director to redeem at the end of the evening. The catch is caused by the director *coughing, or making a noise with his throat*, before he says the sentence, which all the company must repeat after him, one at a time. Thus, the party having all seated themselves in a circle, the director says, "H-e-m (*here making a noise in his throat*), Malaga raisins are very good raisins, but Valencias are better." The young lady or gentleman sitting second is almost sure to say, "Malaga raisins are very good raisins, but Valencias are better." Of course incurring a forfeit through not saying "H-e-m" (*or making a noise in the throat*) like the director. So soon as any one of the party has repeated the sentence, if the little lady or gentleman leaves out the "Hem," the director says, "Edward, or Fanny, (or whoever it may be,) you have said wrong,—a forfeit!" but must not tell him how he has said wrong; and then passes on to the next. The third, fourth, and almost all the party, with the exception of those who have played this game before, are almost sure to leave out the "Hem," and thus incur a forfeit each, as often as the game goes round; it makes the game more amusing even, if one or two of the number do know the trick, as to those not in the secret it seems the more puzzling that others should do it correctly and they not. And it is very

good fun to see the many ways each pronounces the words; thinking they have to pay a forfeit through not pronouncing them properly. When it has passed round three or four times, and a good many forfeits collected, then, and not before, the director can tell them in what way they have incurred so many forfeits.

The Huntsman

This game is one of the liveliest winter evening's pastimes that can be imagined. It may be played by any number of persons above four. One of the players is styled the "Huntsman," and the others must be called after the different parts of the dress or equipment of a sportsman: thus, one is the coat, another the hat, whilst the shot, shot-belt, powder, powder-flask, dog, and gun, and every other article belonging to a huntsman, has its representative. As many chairs as there are players, excluding the huntsman, should next be ranged in two rows, back to back, and all the players must then seat themselves; and being thus prepared, the huntsman walks round the sitters, and calls out the assumed name of one of them; for instance, "Gun!" when that player immediately gets up, and takes hold of the coat-skirts of the huntsman, who continues his walk, and calls out the others one by one. Each must take hold of the skirts of the player before him, and when they are all summoned, the huntsman sets off running round the chairs as fast as he can, the other players holding on and running after him. When he has run round two or three times, he shouts out "Bang!" and immediately sits down on one of the chairs, leaving his followers to scramble to the other seats as they best can. Of course one must be left standing, there being one chair less than the number of players, and the player so left must pay a forfeit. The huntsman is not changed throughout the game unless he gets tired of his post.

The Horned Ambassador

This is a game which, if played with spirit, creates much merriment. It is played in this way:

Strips of paper, twisted like a taper, are all the materials necessary. The first player turns to the person on his left hand, and, with a bow, says—"Good morning, Royal Ambassador, always royal; I, the Royal Ambassador, always royal, come from his Royal Majesty (pointing to his neighbor on his right, who must bow), always royal, to tell you he has an eagle with a golden beak."

The second player must repeat this to his left-hand neighbor exactly word for word as he hears it, adding brazen claws. If he leaves out a word, or makes any mistake, he must have one of the papers twisted into his hair. Then he becomes a one-horned ambassador, and must call himself so, instead of royal.

For instance, No. 1 says:

"Good morning, Royal Ambassador, always royal; I, the Royal Ambassador, always royal, come from his Royal Majesty, always royal, to tell you that he has an eagle with a golden beak."

No. 2, "Good morning, Royal Ambassador, always royal; I, the Royal Ambassador, come from——."

Having left out *always royal* after his own name, No. 2 is horned, and says—"Good, etc.; I, a One-horned Ambassador, always one-horned, come from his Royal," etc.

When his neighbor has gone on, he must add diamond eyes to the eagle—each player must add something to the eagle—and he must say he comes from his One-horned Majesty, instead of his Royal Majesty.

By this time a good many of the party will be well horned; and as every horn incurs a forfeit, the game may cease until they are redeemed. Sometimes the ambassador becomes seven or eight-horned before the game is over.

My Lady's Toilet

Each having taken the name of some article of dress, chairs are placed for all the party but one, so as to leave one chair too few. They all sit down but one, who is called the "Lady's Maid," and stands in the center. She then calls out "My lady's up and wants her shoes," when the one who has taken that

name jumps up and calls "Shoes!" sitting down directly. If any one does not rise as soon as called, a forfeit is incurred. Sometimes she says, "My lady wants her whole toilet," then every one must jump up and change chairs, and as there is a chair too few, of course it occasions a scramble, and whoever is left standing must be lady's maid, and call to the others as before.

Fox and Geese

There must be an even number of persons in this game. A circle is formed, the players standing two by two, so that those who are on the outside each have one person in front of them; these are called the Geese, and there must be some space left between the couples, to allow the one who is chased to run in and out of the circle. Two must be left out, one a Goose, and the other the Fox. The Fox is to catch the Goose not belonging to the circle. The Goose may run around and also within the circle but the Fox is not allowed to pass within. When the Goose who is pursued places himself before one of the couples composing the circle, there will necessarily be three in the row, and as this is against the rule, the outside one of that three immediately becomes liable to be caught instead of the other, and must endeavor to avoid the pursuit of the Fox by darting within the circle and placing himself before some one of the players. It is the object of the Fox to catch the player who makes the third one of a row, and it is the object of each Goose to avoid the third place. The Fox can only touch the Goose as he stands the third in a row, or before he succeeds in escaping to a place of safety. If the Goose is touched by the Fox while in the position of third one in a row, or if touched in passing from this third place to one of safety, he becomes the Fox instead, and the other becomes a Goose again. The amusement of this game depends upon the spirit and animation with which it is conducted. Great rapidity of movement is necessary, especially when the Fox is a very active one, who will endeavor to dart upon the outside Goose in sudden and unexpected ways.

PLEASANT PICTURES OF CHILD LIFE—II.

Fly-Feather

The company sits in as small a circle as possible without crowding each other, and with a sheet stretched in the midst of them, held tightly under each chin.

Somebody takes a small downy feather—any pillow will furnish one—and lets it float in the air, giving it a puff with his breath.

The person toward whom it descends must likewise blow it up and away, for if it falls upon him, or he allows it to fall upon the sheet, he pays a forfeit.

A Good Fat Hen

The leader begins by saying, "A good fat hen," which is repeated by everybody around the room. He then says: "Two ducks and a good fat hen," which is likewise repeated. Then: "Three plump partridges, two ducks and a good fat hen," which again goes the rounds. And so on until, by adding one object at a time, the following is produced:

"Ten sacrificed monkeys on a catamaran floating, Nine Mesopotamian mares with their manes and tails in good order, Eight transmogrified priests in their pulpits preaching, Seven piggy-wiggies in a rye field rooting, Six screaming squirrels in a crab-tree screeching, Five gray geese in a green field grazing, Four hares headless, Three plump partridges, Two ducks and a good fat hen."

Whoever fails to repeat correctly this heterogeneous accumulation is dropped from the game.

The Cushion-Dance

A hassock is placed end upward in the middle of the floor, round which the players form a circle with hands joined, having first divided into two equal parties. The adversaries, facing each other, begin by dancing round the hassock a few times;

then suddenly one side tries to pull the other forward, so as to force one of their number to touch the hassock, and to upset it. The struggle that necessarily ensues is a source of great fun, causing even more merriment to spectators than to the players themselves. At last, in spite of the utmost dexterity, down goes the hassock or cushion, whichever it may be. Some one's foot is sure to touch it before very long, when the unfortunate individual is dismissed from the circle, and compelled to pay a forfeit.

Hands Up, or Up Jenkins

The company seat themselves around a table, the opposite sides being opponents. Each side chooses a captain. The captain on one side conceals a piece of money (a silver quarter is best) in one hand. Holding up both hands, he asks the other side which of the hands it is in. If the other side guess aright the quarter is passed over, and they begin the game as follows: All the hands of that side are hidden under the table while the quarter is given to one of the number. The captain on the other side calls, "Hands up!" or, "Up, Jenkins!" Immediately the closed hands of all the party are held high, arms being vertical. They are held in this position while the opposing party view them. The captain then calls, "Down, Jenkins!" Every hand comes down flat on the table with open palms. The opposing party then try to locate the quarter, the side assisting their captain to guess. If the guess is right the quarter is passed over to the other side, but if the guess is wrong all the hands that are on the table are counted and noted for a score, and the quarter is retained. The same thing is gone over again until the money is located and passed over. The side trying to gain the quarter can, instead of locating it immediately, request certain ones to take off their hands, which makes fewer counts against them in case of failure to locate. But if they require certain hands to remove, and the money is under them, the hands remaining are counted against them, and the quarter is still retained until the other side locates it correctly. The side having the largest score, of course, wins the game.

A Peanut Gathering

As the title of this game suggests, the object is to gather peanuts which have been hidden in every available nook and corner, in crevices of sofas and chairs, under bric-à-brac, on mantels and behind doors, etc. Each hunter is provided with a bag which is made with a piece of tape across the middle of the top, on which his name is written. As the peanuts are found they are placed in the bags. When it is thought that the hunting has continued long enough, the hunters are recalled to the room from which they started, and the contents of the bags are counted by a committee appointed for the purpose, and a prize is awarded to the hunter having the largest number of peanuts.

Bean-Bags

Make twelve or sixteen bags six inches square of bed-ticking or heavy canvas and loosely fill them with beans which have been previously washed and dried to remove all dust. With these can be played a variety of games, the two most interesting of which are as follows:

I

Appoint two leaders, who choose sides, arranging the sides in lines facing each other, with a small table at each end of each line.

The bean-bags being equally divided, each leader deposits his share upon the table nearest him. Then at a given signal, seizing one bag at a time with one hand, with the other he starts them down the line, each player passing them to the next until they reach the last, who places them as fast as received upon the table next him.

When all the bags have reached this table, the last player, seizing each in turn, sends them back up the line to the leader, who again deposits them upon his table.

Whichever side first succeeds in passing all of the bags down

the line and back, wins the round. It takes five rounds to make a game, the side winning three out of the five being successful.

The bags must be passed as rapidly as possible, and every one must touch the end table before being returned.

If a bag falls to the ground it is best to leave it where it falls until all the others are down the line, when it may be quickly picked up and passed on with little loss of time. But if in his excitement a player stoops at once to pick it up, he will cause a delay in passing the remaining bags, which invariably creates much confusion and loss of time.

II

Have a board three feet long and two feet wide, elevated at one end by another board to an angle of thirty degrees, and having, some six inches from the top, an opening, about five inches square. Station this board at one end of a long room and divide the company equally.

Eight of the bean-bags are all that are required.

The leader of one side begins. Standing at a suitable distance from the board, he endeavors to throw the bags, one at a time, through the square opening. Every bag that reaches the goal counts ten, every one that lodges upon the board five, and every one that falls to the ground outside of the board a loss of ten.

Suppose A to have put two bags through the opening (twenty) and two upon the board (ten)—that is a gain of thirty—but the other four bags falling to the ground makes a loss of forty, so his real score is a loss of ten.

B puts four through the opening (forty), three upon the board (fifteen), and one upon the ground (minus ten), which gives him a gain of forty-five.

The sides play alternately, and after three rounds for each, the scores, which have been carefully kept by one member of the party, are balanced, and the side having the greatest gain is declared the winner.

A prize is often given for the highest individual score.

The Bag of Luck

The "Bag of Luck" is a decorated paper bag suspended in a doorway at a convenient height; the children, blindfolded, are given three trials to break it with pretty ribbon-wound wands provided for the purpose. These sticks are given afterward as souvenirs of the evening. The child who succeeds in making the first hole in the bag is entitled to a prize, but all share its contents. It is usually filled with confectionery, but flowers may be substituted when candy is considered objectionable.

Going to Jerusalem

One person goes to the piano, while the others arrange in a line as many chairs, less one, as there are players; the chairs alternately facing opposite directions.

Then as the pianist begins to play the others commence marching around the line of chairs, keeping time to the music.

When this suddenly ceases, everybody tries to sit down, but as there is one less chair than players, somebody is left standing and must remain out of the game.

Then another chair is removed and the march continued, until the chairs decrease to one and the players to two. Whichever of these succeeds in seating himself as the music stops, has won the game.

TOYS AND TOY GAMES

An Æolian Harp

THIS can be made on a long, thin, pine box, about four or six inches deep. Fasten to each end of the box little bridges, like those on a violin, and stretch across them thin strings of catgut. At one end fasten the strings to the box itself, and at the other to screw pins. By this means the strings can be tightened or loosened at will. Place the harp in a current of air, and very sweet soft tunes may be obtained.

Animated Serpent

Take a piece of cardboard, firm, but not too thick, and draw upon it the form of a coiled-up serpent. Carefully cut out the serpent, going round and round until you reach the tip of its tail. Paint it green and gold in stripes, fasten a thread through the tail, and suspend it from the mantel-piece, or wherever there is a current of air, and it will twist and writhe as though it were alive.

The Dancing Highlanders

Get an old glove and cut the first two fingers down to the second joint, slip the glove on to the hand, on the two bare fingers put a pair of doll's socks, the one for the first finger being padded in the toe so as to make the finger as long as the second finger. The tips cut from the gloves should be used as shoes.

You must have previously cut out of cardboard the upper part of a Highlander's figure, painted the face, and dressed it in

a kilt. This must be fastened to the glove either with glue, or with stitching, in such a manner that the fingers appear like the Highlander's legs. The figure can then be made to dance jigs and cut capers in a very funny manner.

The Cork Dancer

Cut out the head and bust of a figure in cork; run four stout bristles into this so that it will stand upright. Paint the face, put on a cap and dress of tissue paper, then stand it upon the sounding board of a square or grand piano and play a lively tune. The vibration will cause the figure to dance very quaintly.

Magic Flute

Take an unused cork that has neither crack nor hole in it; place it against the teeth, holding it tightly with the lips, and play upon it with the handles of two forks. An imitation of the sound of a flute will thus be produced, and simple airs can be played.

The Mocking Call

Cut a small square piece from the leaf of the common leek, lay it on a clean board, and scrape away a piece of the green, pulpy substance of the leaf, being very careful not to injure the skin.

Place this against the roof of the mouth with the skin side downwards; press it into place with the tongue, and blow between the tongue and upper teeth. With a little practice sounds of animals and birds can easily be imitated.

Shovelboard, or Shuffleboard

Take a board, or else use an unpolished table that will not suffer by a little scratching. Rule a line at each end, five inches from the end. Take eight pieces of metal or heavy counters, and give two each to four players.

It is usual to play in sides, and the counters must be marked

so that the four belonging to one side may be distinguished from the opponents'.

The counters are placed on the line at one end and, turn and turn about, first friend, then foe, push or shuffle these towards the opposite line. If the counters rest on the line, one point is counted; if they cross the line, two points are counted. and if a counter rests at the edge of the table, half on, half off, it counts three.

The counters which do not cross the line, or which fall off, count no points. Twenty-one points is the limit for the game.

Ring the Nail

Drive a number of nails into a board, taking care that a nail in the center is very much taller than the rest. This is called the King. Some small rings are now required, brass curtain rings answer the purpose very well. Each player has so many rings to throw with, and must try to throw them over the nails. For every successful cast five is counted, unless the King is ringed, when twenty is counted.

Skipjack

Skipjack is made from the wishbone of a fowl. Clean it well and fix two pieces of strong elastic or cat-gut to the two arms. These must be well twisted before being made fast. Then insert a piece of stick in the center of the twisted strings, pull the long end of the stick backwards, fasten it to the pointed arch of the wishbone with a piece of cobbler's wax, place the toy on the ground, stick downward, and very soon the wax will give and "Jack" will begin to skip.

A Sucker

Cut a round piece of leather and bore a small hole in the center. Through this hole pass a string with a knot at one end sufficiently large to prevent the string running through. Soak the leather thoroughly, then press it against the flat surface of

some object you wish to lift. When all the air has been excluded you will find the object can easily be lifted by means of the sucker.

Jackstraws, or Jerk-Straws, and Spillikins

This game may be played with straws about three inches long, but thin slips of wood of the same length are far superior, not being so liable to break. Forty or fifty of these slips are required of three inches, and three or four of six inches in length; they should all be rounded at one end, and pointed at the other. Some of these jackstraws are styled King, Queen, Bishop, etc., and should be distinguished from the others by dipping both ends of the straw in red paint for the King, and one end for the Queen; the Bishop should differ in color, and he may be painted black; the variations may also be made by putting little touches of wax on them instead of colors; these distinguished straws have different values assigned to them—as, for instance, four for the King, three for the Queen, and two for the Bishop. One player should take up all the jackstraws in a bundle, and holding them at a little height from the table, let them fall down in a confused heap on it; each player must then try alternately to take away a jackstraw from the heap without moving any of the others, and this is generally very easy to accomplish at the first, for the top straws are mostly unconnected with the rest, but as the players proceed it requires some tact to jerk them out, with the help of a "pointer," or piece of wood made pointed for the purpose. The player who, at the entire removal of the heap, has the greatest number of straws, wins the game. Should any of the straws while being removed shake the others, they must be put back into the heap again. It is usual in some places, instead of each player removing a straw alternately, for one to continue lifting up the straws until he happens to shake one, when another player takes his turn until he in like manner fails, when another tries his fortune; and so the game continues, until all the straws are withdrawn.

Spillikins is a game founded on that of jerk-straws, the rules for playing it being precisely the same. The spillikins are

made of thin pieces of ivory cut into different forms, some being like spears, others saws, boat hooks, etc.; of some of the patterns there are duplicates, while of others only one. Each pattern has a value assigned to it, the lowest being five, and the highest forty; the numbers do not run in regular succession—as five, six, seven, eight—but irregularly, as five, sixteen, twenty-five. Hooks, made of bone, are employed instead of pointers.

The Cutwater

The Cutwater is a circular piece of sheet lead, or tin, notched like a saw round the edge, and having two holes pierced in it at some distance from each other, through which is passed a piece of string, the two ends being afterward tied together. To set the cutwater in action the doubled string must be alternately pulled and slackened. Every time the string is relaxed the disk revolves in consequence of the impetus it has acquired from the previous pull, and every time the string is tightened it whirls round in an opposite direction, as the doubled string is then untwisted. If the edge of this toy be dipped in water, it may be made to sprinkle the bystanders and the player, hence its name of "Cutwater."

TRICKS

The Height of a Hat

VERY few people have any idea of the real height of a gentleman's high hat, as you will easily discover if you show one to the company. After they have viewed the hat, put it out of the room, and ask those present to mark what they suppose to be the height of it on the wall.

When this has been done, bring in the hat again, and you will find that nearly every one is absurdly out in his attempt.

To Suspend a Needle in the Air

Place a magnet on a stand in order to raise it a little above the level of the table.

Then bring a small sewing-needle containing some thread close to the magnet, and, to prevent the needle attaching itself thereto, keep hold of the end of the thread.

The needle in endeavoring to fly to the magnet and being prevented by the thread, will remain suspended in mid-air.

The Dancing Egg

Get a hard-boiled egg, and place it on the reverse side of a smooth polished plate or bread-platter. If you now turn the plate round while holding it in a horizontal position, the egg, which is in the middle of it, will turn round also, and as the pace is quickened, the egg will move more and more quickly, until it stands up on one end and spins round like a top. In order to be quite sure that the experiment will succeed, you should keep the egg upright, while it is being boiled, so that the inside may be hardened in the proper position.

The Magic Thread

Soak a piece of thread in a solution of salt or alum (of course, your audience must not know you have done this). When dry, borrow a very light ring, and fix it to the thread. Apply the thread to the flame of a candle: it will burn to ashes, but will still support the ring.

The Swimming Needles

There are several ways of making a needle float on the surface of the water.

The simplest way is to place a piece of tissue-paper on the water and lay the needle on it: the paper soon becomes soaked with water, and sinks to the bottom, while the needle is left floating on the top.

Another method is to hang the needle in two slings made of threads, which must be carefully drawn away as soon as the needle floats.

You can also make the needle float by simply holding it in your fingers and laying it on the water. This, however, requires a very steady hand.

If you magnetize a sewing-needle by rubbing it on a fairly strong magnet, and float it on the water, it will make an extremely sensitive compass, and if you place two needles on the water at the same time, you will see them slowly approach each other until they float side by side; that is, if they do not strike together so heavily as to cause them to sink.

The Obstinate Cork

Take a small cork, and ask some one to blow it into a fairly large-sized ordinary bottle that has a neck.

This seems to be quite an easy matter.

The one who tries it will probably blow as hard as possible upon the little cork; but, instead of going into the bottle, as expected, it will simply fall down.

The harder the puffs or blows, the more obstinate the cork will appear to be; and even if the effect of blowing gently be tried, it will be of no use; the cork will not go into the bottle, much to the amusement of those who are watching.

The reason why the cork will not go in is this:

The bottle being already full of air, when the cork is blown, more air will be forced into the bottle, and consequently the air inside will be greatly compressed, and will simply force the cork back.

The following is a simple way of overcoming the difficulty:

Instead of trying to force the cork through the compressed air in the bottle, just the contrary should be tried, that is—some of the air should be sucked out of the bottle; this being done, the bottle will become partly emptied, and when the outside air rushes in to fill up the empty space, it will carry the cork with it to the bottom of the bottle.

How to Light a Candle Without Touching It

Having allowed a candle to burn till it has a long snuff, blow it out suddenly. A wreath of smoke will ascend into the air. Now if a lighted match is put to the smoke at a distance of three or four inches from the wick, the fire will run down the cloud, and relight the candle.

The Vanishing Dime

Stick a small piece of white wax on the nail of the middle finger of your right hand, taking care that no one sees you do it.

Then place a dime in the palm of your hand, and tell your audience that you can make it vanish at the word of command.

You then close your hand so that the dime sticks to the waxed nail. Blow on your hand and make magic passes, and cry "Dime, begone!" Open your hand so quickly that no one will see the dime stuck to the back of your nail, and show your empty hand. To make the dime reappear, you merely close your hand again, and rub the dime into your palm.

The Force of a Water-Drop

Get a match, and make a notch in the middle of it, bend it so as to form an acute angle, and place it over the mouth of a bottle.

Now place a small coin on the match, and ask anyone to get the coin into the bottle without touching either the bottle or the match.

This is very easy to do. Dip your finger in a glass of water, hold it over the place where the match is notched, and let one or two drops fall on this point. The force of the water will cause the sides of the angle to move apart, and the opening thus becomes large enough to let the coin fall into the bottle.

The Dancing Pea

For this trick, take a piece, two or three inches long, of the stem of a clay tobacco pipe, taking care that *one* end is quite even; with a knife or file, work the hole at the even end larger, so as to form a little cup. Choose the roundest pea you can find, run two small pins crosswise through it, put the point of one in the cup of the pipe and blow softly through the other end of the pipe, throwing back your head while you blow, so that you can hold the pipe in an upright position over your mouth.

The pea will rise, fall, and dance in its cup, according to the degree of force you use in blowing, but you must take care not to blow too hard, or you may blow it away altogether.

The Coin Trick

Take a coin in each hand, and stretch out your arms as far apart as you can. Then tell your audience that you will make both coins pass into one hand without bringing your hands together.

This is easily done by placing one coin upon the table and then turning your body round until the hand with the other

coin comes to where it lies. You can then easily pick the coin up, and both will be in one hand, while your arms are still widely extended.

To Light a Snowball with a Match

Roll a snowball and put it on a plate. While rolling, contrive to slip a piece of camphor into the top of it. The camphor must be about the size and shape of a chestnut, and it must be pushed into the soft snow so as to be invisible—the smaller end uppermost, to which the match should be applied.

The Mysterious Ball

This seems to be a plain wooden ball with a hole bored in its center, through which a string is passed. The ball will move lightly up and down this cord, but let some one who knows the trick take the string in his hands, and it becomes quite a different matter; the ball will move quickly, or slowly, at command, and, if told to do so, will stand still until ordered to move on again.

The reason for this peculiar behavior is that inside the ball there are two holes, one of which is quite straight, while the other is curved, and turns out of the straight hole.

It is through this curved passage that the cord is passed, and you can easily see that to regulate the movements of the ball, it is only necessary to hold the string more or less tightly. If you hold the cord perfectly tight, the ball will not be able to move at all. The ball can be purchased at any toy-store.

The Wonderful Pendulum

If you fill a wine-glass with water and place a thick piece of paper over it so that no air can get in, you will find that you can turn the glass upside down without spilling a drop of water, because the pressure of the air on the outside will keep the paper from falling off. It is on this principle that the present pendulum is to be made.

Take a piece of cardboard larger than the mouth of the glass; pass a cord through a small hole in the center of the card, and fasten it by means of a knot on the under side, then carefully cover the hole with wax, so that no air may get in.

Place your cardboard over the glass full of water, and by making a loop in the end of the cord, you can hang the glass from a hook in the ceiling without any fear of its falling off. In order to make sure that no air can get into the glass, it is wise to smear the rim with tallow before laying the cardboard on.

Chinese Shadows

Here is a simple way of making shadow pictures. Place a candle on the table, and fix a piece of white paper on the wall at the same height from the ground as the light is. Now place some non-transparent object, as for instance, a large book, between the candle and the paper, and on one side of the table place a mirror so that it will reflect the light of the candle on to the paper on the wall.

If you now put little cardboard figures between the candle and the mirror, a shadow will be thrown on the white paper, and you can move your figures about just as you please.

The Game of Shadows

For this game you require a white sheet to be hung up at the end of the room. Then the "shadow-makers" take up their places on low stools behind the sheet; there must be only one lamp in the room, which should be placed about six or seven feet behind the "shadow-makers." Then the "shadow-makers" drape themselves with shawls, or anything handy, and take their places so that their shadows are thrown upon the sheet. They must of course try to disguise themselves, so that the "shadow-seekers" may not be able to guess their identity.

By loosening the hair and letting it fall over the face, a girl may appear like a man with a beard; bending the finger over the nose gives one a very queer-looking hooked nose in the shadow, and entirely alters the appearance of the face. Covering one-

self up in a sheet and then extending the arms, gives one the appearance of a large bat.

As soon as a "shadow-maker's" identity has been guessed, he must take his place as a "shadow-seeker," and the one who guessed him becomes a "shadow-maker." The penalty of a glance behind on the part of the "shadow-seeker" is to pay a forfeit.

Living Shadows

In order to make these, you must stand in the corner of the room, near a mirror. Let some one hold a light behind you, so that the shadow of your head and shoulders will be thrown upon the wall, and also so that the reflected light from the mirror will fall at exactly the same spot as the shadow of your head.

If the mirror is now covered with a piece of thick paper, from which two eyes, a nose, and a mouth are cut out, a strange effect will be produced. In order to make the shadow still more lifelike, cut out two pieces of paper, fasten one over the mirror, and move the other over it. In this way the eyes and mouth of the shadow may be made to move.

To Guess the Two Ends of a Line of Dominoes

For this trick a whole set of dominoes is required, the performer taking care to hide one of the set *not* a double in his pocket. The remaining dominoes should be well shuffled, and placed according to the ordinary rules of domino games, and the performer undertakes to tell, without seeing them, the two numbers forming the extremes of the line, set during his absence from the room.

The numbers on the extreme ends of the domino line will be exactly the same as the numbers on the domino which the performer has in his pocket.

If he is asked to repeat the trick he should be sure to change the hidden domino, or he may chance to be found out.

The Feather-Catch

Ask one of your audience to stand upon a chair, and then tell him you will bring him "down upon a feather."

When some one has taken up his position on a chair, pretend to examine carefully the best methods of lifting him, then when every one's curiosity is aroused, produce a feather, point to the down, and say, "See, I have brought you *down* upon a feather."

The Nut-Catch

Tell your audience you will show them that which neither they nor any one else ever saw before, and which no one will ever see again. After every one has tried to guess what this can be, produce a nut from your pocket, crack it, show the kernel, and ask if any one has ever seen it before; then eat the kernel, and ask if any one will ever see it again.

Clicking Pennies

Blindfold a person. Now take two pennies between the first finger and thumb of the right hand, insert the first finger of the left hand in such a way that when withdrawn the pennies will make a clicking sound. Make this sound in certain positions and the blindfolded person will be unable to tell you from which direction it proceeds.

For instance, if the clicking noise is made at the side of the head the one who is blindfolded will probably be able to at once detect the position of the pennies.

But draw an imaginary line through the head as though it were to be cut in halves straight between the eyes and through nose and chin, then click the pennies at any point on this imaginary line and the person on whom the trick is played will probably guess wrongly at each attempt. He will think the clicking proceeds from the back of his head instead of the front.

Lord Dundreary's Method of Proving he had Eleven Fingers

Begin counting the fingers of both hands—1, 2, 3, 4, 5, 6, 7, 8, 9, 10. Then count backwards, touching them: 10, 9, 8, 7, 6, on one hand; hold up the other hand and say, "and five are eleven."

The Lame Lamplighters

Two boys kneel down opposite one another, each resting on one knee, and holding the other leg off the ground; a lighted candle is placed in the hand of one of them, and a candle not lighted is given to the other; the latter then tries to light his candle from that of the former.

The Stooping Stretch

Chalk a line on the floor, and place the outer edge of the right foot on it, and at a little distance behind the right foot, put the left heel on the line. Then take a piece of chalk in your right hand, bend down and pass the right hand between your legs and under the right knee, and chalk a line on the floor, as far from the former line as you possibly can, yet not so far but that you can easily recover yourself without touching the ground with your hands, or removing your feet from the line. Your knee and body may project beyond the chalked line, provided you keep your feet properly placed.

The Palm-Spring

Stand at a little distance from a wall, with your face toward it, and lean forward until you are able to place the palm of your hand quite flat on the wall; you must then take a spring from the hand, and recover your upright position, without moving either of your feet. It is better to practise it first with the feet at a little distance only from the wall, increasing the space gradually.

Trial of the Thumb

Place the inside of the thumb on the edge of a table, taking care that neither of the fingers nor the palm of the hand touch it, next move your feet as far back as you possibly can, and then, taking a spring from the thumb, recover your standing position, without shifting your feet forward. The table should be a heavy one, and not upon castors, or the other end should be placed against a wall, else in springing back you would in all probability push it away and fall upon your hands and knees. It greatly facilitates the spring if you rock yourself to and fro three or four times before you take it; and it is best to begin as in the "palm-spring," with the feet at a little distance from the table, increasing the "trial of the thumb" by degrees.

Tumble-Down Dick

A strong, long-backed old-fashioned chair is the best adapted for this feat. Place the chair down on the floor, front legs down, and put a small piece of money at the end or else about the middle of the back. Next kneel on the back legs of the chair, and take hold with both hands of the sides of the legs near the seat rail; then bend down and endeavor to touch the back of the chair with your face, and take up the piece of money; you must be careful that you do not fall forwards, or allow the top of the chair to touch the ground. The position of the hands may be altered, either higher up or lower down the back of the chair, as may be necessary.

To Take a Chair from Under You without Falling

In order to perform this feat, you must lie along on three chairs. Throw up your chest, keep your shoulders down, and your limbs as stiff as you possibly can; then take the center chair from under your body, carry it over and place it again under your body on the opposite side. Although this at first sight appears difficult, yet in reality it is very easy; it is well, however,

to have a chair of a rather lighter construction for the middle one, as you are thereby enabled to do it with less strain upon the muscles of the body and arm.

Prostrate and Perpendicular

Cross your arms on your body, lie down on your back, and then get up again, without using either your elbows or hands in doing so.

Knuckle Down

This is a very good feat. Place the toes against a line chalked on the floor, kneel down and get up again without using the hands, or moving the feet from the line.

The Tantalus Trick

Desire a player to stand with his back close to the wall, then place a piece of money on the floor, at a little distance in front of him, and tell him he shall have it if he can pick it up without moving his heels from the wall. Although at first sight it appears very easy to do this, it will be found impossible, as in bending, a part of the body must necessarily go back beyond the heels, which is of course prevented by the wall.

PUZZLES AND CONUNDRUMS

Diamond Puzzle

THE Diamond Puzzle is to select a name of a person or thing the letters of which will arrange themselves in diamond shape in this way: ROBERT BURNS.

The 18th letter in the alphabet.
Diminutive of Robert.
A beautiful fur.
Retaliation.
Persons who effect changes for the better.
A well-known Scotch poet.
Beautiful little wild flowers.
A state of emptiness.
Tapestry.
An industrious little insect.
A consonant.

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                R
              B O B
            S A B L E
          R E V E N G E
        R E F O R M E R S
      R O B E R T B U R N S
        B L U E B E L L S
          V A C U I T Y
            A R R A S
              A N T
                S
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The solutions must be given to the person who is to guess the name, and from it they must find out the Diamond Puzzle. It will be found that the central letters read downwards or horizontally will spell the name chosen, as in the "Robert Burns" puzzle.

Name Puzzles

(*a*) Add an "l" to a lady's name, and your teeth will chatter as you sit beside her. What is her name?
(*b*) What letter will make a lady fit for restraint?
(*c*) Which two will make a chatting lady very dull?
(*d*) Add one letter and remove another, and who becomes a beauty?
(*e*) Take two letters away, and what lady becomes very painful?
(*f*) Who shows bad behavior when half of her name is lost?
(*g*) Take away her first letter, and place her last elsewhere, and she remains what she was before. What is her name?
(*h*) Take away two letters from each end of a lady's name, and you make a martyr of her. Who is she?
Halve the lady mentioned, and she becomes an inhabitant of the desert. Her name, please?
(*i*) Add ourselves to the end of a lady's name, and she becomes a village famous in Bible story. What is her name?
(*j*) Take away the three last letters from a lady's name, and you make her a sacred song. What can it be?

Answers.

(*a*) Alice—all ice.
(*b*) Violet—violent.
(*c*) Rose—proser.
(*d*) Ellen—belle.
(*e*) Rachel—ache.
(*f*) Gertrude—rude.
(*g*) Bertha—earth.
(*h*) Arabella—Abel—Arab.
(*i*) Emma—Emmaus.
(*j*) Caroline—carol.

Word-Puzzles

(*a*) Name an English word containing eight syllables.
(*b*) Name an English word in which the letter "i" occurs five times.
(*c*) Name at least three English words, each of which contains all the vowels, including the "y."

Answers.—(*a*) Incomprehensibility; (*b*) Invisibility; (*c*) Revolutionary; Elocutionary; Unquestionably.

Hidden Words

Give each of the players paper and pencil, and tell them to describe a number of words, the initial letters of which will form a word they must guess. Each player in turn does this, then reads his riddles aloud, while the others guess.

Example:

My first is a very cruel Roman Emperor . . . . Nero.
My second is one of Longfellow's heroines . . . Evangeline.
My third is the king of beasts . . . . . Lion.
My fourth is a bird of flight . . . . . Swallow.
My fifth is a favorite fruit . . . . . Orange.
My sixth is a very secluded religious woman. . . Nun.
My whole is a hero, dear to every British heart. .
NELSON.

Conundrums

Why is life the greatest of all conundrums? Because we must all give it up.

Which is swifter, heat or cold? Heat, because you can catch cold.

Why are dudes no longer imported into this country from England? Because a Yankee dude'll do (Yankee doodle doo).

Where was paper currency spoken of first in the Bible? Where the dove left the ark and brought a green back.

How many wives is a man lawfully entitled to by the English Prayer-book? Sixteen: Four richer, four poorer, four better, four worse.

Why was the giant Goliath very much astonished when David hit him with a stone? Because such a thing had never entered his head before.

What became of Lot when his wife was turned into a pillar of salt? He took a fresh one.

What is the center of gravity? The letter V.

What three letters turn a girl into a woman? A-g-e.

Although great wealth is said to harden the heart, what is every millionaire sure to be? A capital fellow.

What belongs to yourself, and is used by your friends more than by yourself? Your name.

When is a soldier like an old toper? When he re-treats.

Why is a policeman like a rainbow? Because he rarely appears until the storm is over.

What is the difference between a milkmaid and a swallow? The milkmaid skims the milk, the swallow skims the water.

Why is a man's face shaved in January like a celebrated fur? Because it's a chin-chilly.

What is that which was born without a soul, lived and got a soul, but died without a soul? The whale that swallowed Jonah.

When is a doctor most annoyed? When he is out of patients.

Why is a poor acquaintance better than a rich one? A friend in need is a friend indeed.

What is there remarkable about a bee? Why, ordinarily it has but little to say, yet generally carries its point.

Why is the first chicken of a brood like the mainmast of a ship? Because it's a little ahead of the main hatch.

How many persons can a deaf and dumb man tickle? He can jest-tickle-eight (gesticulate).

What is the easiest way to keep water out of the house? Omit to pay your water-tax.

What is it that is queer about flowers? They shoot before they have pistils.

What prescription is best for a poet? A composing draught.

What is worse than raining cats and dogs? Hailing omnibuses.

Why is an umbrella like a pancake? Because it is seldom seen after Lent.

On what day of the year do women talk the least? The shortest day.

What is that which every living person has seen, but will never see again? Yesterday.

What is the difference between dead soldiers and repaired garments? The former are dead men, and the latter are mended (dead).

Why, when you paint a man's portrait, may you be described

as stepping into his shoes? Because you make his feet yours (features).

Why may a beggar wear a very short coat? Because it will be long enough before he gets another.

Which is the more valuable, a five-dollar note or five gold dollars? The note, because when you put it in your pocket you double it, and when you take it out again you see it increases.

What is the difference between the Prince of Wales and the water in a fountain? One is heir to the throne, the other thrown to the air.

Why is a pretty young lady like a wagon-wheel? Because she is surrounded by felloes (fellows).

When is it dangerous to enter a church? When there is a canon in the reading-desk, a great gun in the pulpit, and a bishop charges the congregation.

What is the most awkward time for a train to start? 12.50, as it's ten to one if you catch it.

Why can negroes be safely trusted with secrets? Because they are sure to keep dark.

Why is a camel a very pugnacious animal? Because he always has his back up.

Which are the two smallest things mentioned in the Bible? The widow's mite and the wicked flee.

What is the difference between Niagara Falls and Queen Elizabeth? One is a wonder, the other is a Tudor.

Why is it easy to break into an old man's house? Because his gate (gait) is broken and his locks are few.

What word of only three syllables combines in it twenty-six letters? Alphabet.

What man mentioned in the Bible had no father? Joshua, the son of Nun.

When will there be but twenty-five letters in the alphabet? When U and I are one.

Why is it impossible for a swell who lisps to believe in the existence of young ladies? Because he calls every miss a mith (myth).

What was Joan of Arc made of? Maid of Orléans.

Why are your eyes like friends separated by the ocean? Because they correspond but never meet.

Why is a lady who faints in a public place like a good intention? Because she needs carrying out.

What is the brightest idea in the world? Your eye, dear.

What animal drops from the clouds? The rain, dear (reindeer).

I went out walking one day and met three beggars; to the first I gave ten cents, to the second I also gave ten cents, and to the third I gave but five—what time of day was it? A quarter to three.

What is that which by losing an eye has nothing left but a nose? Noise.

Why is a hen immortal? Because her son never sets.

What is that which is full of holes and yet holds water? A sponge.

How is it that Methuselah was the oldest man when he died before his father? His father was translated.

What is the oldest table in the world? The multiplication table.

Which river is the coldest? The Isis (ice is).

Why are cats like unskilful surgeons? Because they mew till late (mutilate) and destroy patience (patients).

Why is it almost certain that Shakespeare was a broker? Because no other man has furnished so many stock quotations.

Why was Eve not afraid of the measles? Because she'd Adam (had 'em).

Why is a professional thief very comfortable? Because he usually takes things so easy.

When is a man obliged to keep his word? When no one will take it.

Why is an attractive woman like a successful gambler? Because she has such winning ways.

Who first introduced salt meat into the navy? Noah, when he took Ham into the ark.

Why are two young ladies kissing each other an emblem of Christianity? Because they are doing unto each other as they would that men should do unto them.

What was the difference between Joan of Arc and Noah's ark? One was Maid of Orléans, the other was made of wood.

Why would it be very appropriate for a man named Benjamin to marry a girl named Annie? Because he would be Bennie-fitted and she Annie-mated.

How many soft-boiled eggs could the giant Goliath eat on an empty stomach? One, after which his stomach was not empty.

Why is a baker a most improvident person? Because he is continually selling that which he kneads himself.

What is it we all frequently say we will do and no one has ever yet done? Stop a minute.

Which nation produces the most marriages? Fascination.

When is a horse like a house? When he has blinds on.

Why is a bridegroom often more expensive than a bride? Because the bride is given away, but the bridegroom is often sold.

Why is divinity the easiest of all professions? Because it is easier to preach than to practice.

When is love deformed? When it is all on one side.

What is the difference between a butcher and a flirt? One kills to dress, and the other dresses to kill.

Who had the first entrance into a theater? Joseph, when he was taken from the family circle and put into the pit.

Why is A like a honeysuckle? Because a B follows it.

Why is modesty the strongest characteristic of a watch? Because it always keeps its hands before its face, and runs down its own works.

What two animals carried the least into the ark? The fox and cock, because they carried only a brush and comb between them.

Who are the two largest ladies in the United States? Miss Ouri and Mrs. Sippi (Missouri and Mississippi).

What key in music would make a good officer? A sharp major.

What is the keynote to good manners? B natural.

Why is a stupid fellow like G sharp? Because he is A flat.

In what place did the cock crow so loud that all the world heard him? In the ark.

When did Moses sleep five in a bed? When he slept with his forefathers.

Why is it more dangerous to go out in the spring than any other time of the year? Because in the spring the grass has blades, the flowers have pistils, the leaves shoot, and the bulrushes out.

What is the difference between a hill and a pill? One is hard to get up, the other is hard to get down.

A man and a goose once went up in a balloon together, the balloon burst and they landed on a church steeple, how did the man get down? Plucked the goose.

Who was the greatest orator spoken of in the Bible? Samson, because he brought the house down filled with his enemies.

Why does a Russian soldier wear brass buttons on his coat, and an Austrian soldier wear steel ones? To keep his coat buttoned.

What is the difference between an old penny and a new dime? Nine cents.

Which is the best way to make a coat last? To make the trousers and vest first.

When were walking-sticks first mentioned in the Bible? When Eve presented Adam with a little Cain (cane).

Why does a cat look on first one side and then another when she enters a room? Because she can't look on both sides at the same time.

Why is Philadelphia more subject to earthquakes than any other city? Because she is a Quaker city.

In what liquid does the Queen of Spain take her medicine? In cider (side her).

Who was the first woman spoken of in the Bible? Genesis (Jennis Sis).

Why do tailors make very ardent lovers? Because they press their suits.

What would contain all the snuff in the world? No one nose (knows).

What is the first thing a man sets in his garden? His foot.

When may bread be said to be alive? When it has a little Indian in it.

Why does a bachelor who has a counterfeit half-dollar passed on him want to get married? To get a better half.

Why does a sculptor die a most horrible death? Because he makes faces and busts.

Why are washerwomen great flirts? Because they wring men's bosoms.

Why is a married man like a fire? Because he provokes his wife by going out at night.

What is the difference between a young lady and a mouse? One charms the he's, the other harms the cheese.

What is the difference between a gardener and a Chinaman? One keeps the lawn wet, the other keeps the lawn dry (laundry).

Why is a man who makes pens a wicked man? Because he makes men steel (steal) pens and then says they do write (right).

Who is the greatest chicken-killer spoken of in Shakespeare? Macbeth, because he did murder most foul.

Spell "Adam's Express Company" with three letters. E-v-e.

What three great writers' names might you think of if you were watching a house burn down? Dickens, Howitt, Burns.

If you were invited out to dinner and on sitting down to the table saw nothing but a beet, what would you say? "That beet's all."

When is charity like a top? When it begins to hum.

Why is a man sometimes like dough? Not because a woman needs (kneads) him, but because he is hard to get off of her hands.

At what time of day was Adam created? A little before Eve.

If a bear were to go into a dry goods store, what would he want? He would want muzzlin'.

Why is B like a hot fire? Because it makes oil Boil.

Why was the first day of Adam's life the longest? Because it had no Eve.

Why is a washerwoman like a navigator? Because she spreads her sheets, crosses the line, and goes from pole to pole.

Why is an author the queerest animal in the world? Because his tale comes out of his head.

Why is it that a tailor won't attend to business? Because he is always cutting out.

Why was Noah like a hungry cat? Because he went forty days and forty nights without finding Ararat.

When are we all artists? When we draw a long face.

Why are watch-dogs bigger by night than by day? Because they are let out at night and taken in in the morning.

When is a tradesman above his business? When he lives over his shop.

Which is the liveliest city in the world? Berlin; because it's always on the Spree.

Why is a water-lily like a whale? Because they both come to the surface to blow.

Why is a shoemaker the most industrious of men? Because he works to the last.

Why is scooping out a turnip a noisy process? Because it makes it hollow.

What motive led to the invention of railroads? The locomotive.

Why are deaf people like Dutch cheeses? Because you can't make them here (hear.)

When is the best time to get a fresh egg at sea? When the ship lays to.

Who was the first whistler? The wind.

What tune did he whistle? "Over the hills and far away."

Why need a traveler never starve in the desert? Because of the sand which is (sandwiches) there.

Why is a little man like a good book? Because he is often looked over.

Why is a pig in a parlor like a house on fire? Because the sooner it is put out the better.

What is the difference between a soldier and a bombshell? One goes to war, the other goes to pieces.

Why is it dangerous to sleep in a train? Because every train runs over all the sleepers on the line.

When does a farmer double up a sheep without hurting it? When he folds it.

What lives upon its own substance and dies when it has devoured itself? A candle.

Why is a dog biting his tail like a good manager? Because he makes both ends meet.

Which is the left side of a plum pudding? That which is not eaten.

What letter of the alphabet is necessary to make a shoe? The last.

Why is a fishmonger never generous? Because his business makes him sell fish (selfish).

What is that which works when it plays and plays when it works? A fountain.

Why are fowls the most economical things a farmer can keep? Because for every grain they give a peck.

If a man who is carrying a dozen lamps drops one, what does he become? A lamp lighter.

Why is a spider a good correspondent? Because he drops a line at every post.

Why is a watch like a river? Because it doesn't run long without winding.

What is that which flies high, flies low, has no feet, and yet wears shoes? Dust.

When has a man four hands? When he doubles his fists.

What is the difference between a schoolmaster and an engine-driver? One minds the train and the other trains the mind.

A man had twenty sick (six) sheep, and one died: how many were left? 19.

Which is the best day for making a pancake? Friday.

Which is the smallest bridge in the world? The bridge of your nose.

What four letters would frighten a thief? O I C U.

Which is easier to spell—fiddle-de-dee or fiddle-de-dum? Fiddle-de-dee, because it is spelt with more "e's."

Why are weary people like carriage-wheels? Because they are tired.

An old woman in a red cloak was passing a field in which a goat was feeding. What strange transformation suddenly took place? The goat turned to butter (butt her), and the woman into a scarlet runner.

Which bird can lift the heaviest weights? The crane.

Why is a wise man like a pin? He has a head and comes to a point.

Why may carpenters reasonably believe there is no such thing as stone? Because they never saw it.

Which is the only way that a leopard can change his spots? By going from one spot to another.

When is a tall man a little short? When he hasn't quite enough cash.

Why is a watch the most difficult thing to steal? Because it must be taken off its guard.

Why is there never anybody at home in a convent? Because it is an (n)uninhabited place.

Why is shoemaking the easiest of trades? Because the boots are always soled before they are made.

Why is it probable that beer was made in the Ark? Because the kangaroo went in with hops, and the bear was always bruin.

Why is C like a schoolmistress? Because it forms lasses into classes.

What is that which never asks any questions and yet requires many answers? The street-door.

Which is the longest word in the English language? Smiles; because there is a mile between the first and last letters.

What is that which happens twice in a moment and not once in a thousand years? The letter M.

What sea would a man most like to be in on a wet day? A dry attic (Adriatic).

Why is coffee like an axe with a dull edge? Because it must be ground before it is used.

What is the difference between a bottle of medicine and a troublesome boy? One is to be well shaken before taken, and the other is to be taken and then shaken.

Why did William Tell shudder when he shot the apple from his son's head? Because it was an arrow escape for his child.

What is that which the more you take from it the larger it grows? A hole.

Why should a man always wear a watch when he travels in a waterless desert? Because every watch has a spring in it.

Of what trade is the sun? A tanner.

What relation is a doormat to a door? Step-fa(r)ther.

What is that which you cannot hold ten minutes, although it is as light as a feather? Your breath.

What is the worst weather for rats and mice? When it rains cats and dogs.

When are two apples alike? When pared.

What is the difference between a blind man and a sailor in prison? One cannot see to go and the other cannot go to sea.

ACTING CHARADES AND LITTLE PLAYS

The "Band-Box" Charade

Scene 1: *A Street*

THIS can be made by placing a row of chairs with open backs near the wall facing the audience; a child is stationed behind each chair, and, looking through the open back, pretends to be looking out of a window.

BAND

1st Child (behind chair).—Oh! dear, how dull our street always is. I declare nothing nice ever comes this way.

2nd Child.—No, I quite agree with you. Why, I haven't seen a "Punch and Judy" for *months*. I wish my mother would go and live in another street.

3rd Child.—Never mind, let us go out and have a game.

(Enter five or six children—or a lesser number, if more convenient—carrying toy musical instruments.)

1st Child.—Hurrah! Here comes a German Band. Come along, children; let's go and listen to it.

(The band groups itself at the end of the street, and the children stand round. After tuning up, the band begins to play.)

2nd Child.—Now, Mary Jane, we can dance. I'll dance with you.

3rd Child.—No, *I* want to dance with Mary Jane.

1st Child.—I don't want to dance at all.

2nd Child.—You must.

3rd Child.—Yes, you must.

(Band ceases playing and one of the bandsmen comes round for money.)

1st Child.—I haven't any money.

2nd Child.—But we haven't begun to dance yet.

Bandsman.—You shouldn't have been so long arguing then. Surely you'll give the band a penny, after all the pretty music it has played?

1st Child.—I won't.

2nd Child.—*I* won't.

3rd Child.—And *I* won't.

Bandsman.—Well, you *are* mean. Come along. (Beckoning to the rest of the band.) We'll go, and it will be a long time before we come down *this* street again.

BOX

Scene 2: A Room

Tommy (hopping about the room, waving a letter in his hand.)—Hurrah! hurrah! Uncle Dick is coming. Hurrah! hurrah! (Enter Tommy's brother and sister and Papa and Mamma.)

Papa.—What's the matter, Tommy?

Tommy.—Uncle Dick has written to say he is coming to spend Christmas with us, and he is bringing me a Christmas box.

Mamma.—How kind of him! But be sure you are careful not to offend him, Tommy. He is rather a touchy old gentleman.

Sister.—I wonder what it will be, Tommy.

Brother.—I hope it will be a set of cricket things, and then we can play cricket in the summer.

Tommy.—Oh! yes, I hope it will be, but whatever it is, it is sure to be something nice.

(Begins hopping about again. Enter Uncle Dick, a very old gentleman with a gouty foot. Tommy does not see him and goes banging into him, treading on his gouty foot.)

Uncle Dick.—Oh! oh! oh! oh, my toe!

Tommy.—Oh! Never mind your toe! Where's my Christmas box?

Uncle Dick.—Your Christmas box, you young scamp! Think of my toe.

Tommy.—Please, Uncle, I'm very sorry, but I do so want to know what you have brought me for a Christmas box.

Uncle Dick (roaring).—Here's your Christmas box, and may it teach you to be more careful in future. (Boxes Tommy's ears.)

BAND-BOX

Scene 3: Milliner's Shop

Mistress (to new apprentice).—Now, Mary, you must take Lady Fashion's new bonnet home, and be sure you wait to hear if her ladyship approves of it.

Mary.—Yes, madam, and what shall I say if she doesn't?

Mistress.—Oh! you must listen to what she has to say and then answer: "Very good, your ladyship; the alterations shall be made." Now, take the bonnet and go. (Mary takes the bonnet and prepares to start.) You don't mean to say you are going to take it like that?

Mary.—Why not, madam?

Mistress.—You must wrap it up, of course.

(Mistress busies herself with other bonnets while Mary wraps up the bonnet in a newspaper.)

Mary.—Is that right, madam?

Mistress.—Good gracious! no; the idea of taking home her ladyship's bonnet in a newspaper. You must put it in a band-box with some nice soft paper. Here, give the bonnet to me and I will pack it up.

(Mistress packs up the bonnet and gives the box to Mary, who goes off stage.)

Mistress.—Well, I'm sure. I hope that girl will make no more mistakes, but really she is too trying for anything, and I'm afraid she will never make a good milliner. Fancy a milliner who doesn't know the use of a band-box! Ha! ha! ha! Oh! it is too funny for anything.

Exit, laughing.

Here is a list of words which will divide easily into charade words:

Brides-maids	Key-hole	Sweet-heart
Hand-some	Pat-riot	Fox-glove

Mad-cap	Rail-way	Nose-gay
Sea-side	Cur-tail	Turn-key

Port-man-teau (toe)
In-no-cent
Hand-i(I)-craft
A-bun-dance
Car-pen-try
In-do-lent

THE FAIRIES' LESSON

A Little Play in Three Scenes

CHARACTERS

Fairy Queen
Tricksy . . . . } *Subjects of Fairy Queen*
Puck . . . . . }
Sprite . . . . . }
Jack
Jack's Mother

Fairies . . . . } (*As many as there are children to take the parts.*)

SCENE I

Forest Glade

(*Curtain rises, and discloses a fairy dance. At the end of dance, enter* Fairy Queen. Fairies *divide into two rows, between which the* Queen *passes to her flowery throne.*)

F. Queen.—Dear little subjects, once more I am in your midst. For three weary days and nights I have wandered far from you on my travels through the world, but now I am safe at home again, and oh! how glad I am! Oh!——(*Yawns.*)

Tricksy.—Your Majesty is tired. Shall we sing you to sleep?

F. Queen.—Not yet, good Tricksy. First I must tell you all that I have done while I was absent from you, and then I

must hear how you have occupied yourselves in my absence. (PUCK *presents a goblet to the* QUEEN, *which she accepts with a smile.*) Thanks, my ever thoughtful Puck. (*Drinks and hands the cup to* PUCK *again.*)

SPRITE.—And now is your Majesty sufficiently rested to tell us of your travels?

F. QUEEN.—Three nights ago, a moonbeam told me of a little maid, who lives far, far from here, and who, she said, deserved the best gifts we fairies could bestow. For she was always good and kind to the poor dumb creatures round her, and once little Gretel had given all the pennies that she had saved for Christmas-time, to save a poor little kitten, which some boys were ill-treating.

SPRITE.—And your Majesty went to reward her?

F. QUEEN.—Yes. I found her asleep in bed, with a little furry ball curled up beside her. I kissed her on each cheek and left two dimples there; I opened the door of her soft little heart and left a sunbeam within; and then I gently touched her eyes so that the world should always look fair and bright to her. These were the best gifts I had to bestow, and, having seen her smile in her sleep, I knew my spells were working and came home. And now, good Puck, tell me, how have you passed the time in my absence?

PUCK.—One day I watched two little children feeding the birds, and as I lay hidden in the heart of a rose, I saw a little bird fall from its nest. "They will catch it and shut it up in a cage," I said; but, no: they lifted it carefully and went into the house. Presently I saw them at an upper window. They leaned out until they could reach the nest under the eaves, and then they placed the birdie gently in its old home. When they were out in the woods that day, I put on my squirrel's robe and ran quickly up the nut-trees, and as they passed I shook the trees, and showers of ripe nuts fell about their feet.

F. QUEEN.—That was well done, dear Puck. And now, my pretty Sprite and little Tricksy, what have you to tell?

(TRICKSY *and* SPRITE *look very sorrowful.*)

TRICKSY.—Alas! ours is a sad, sad tale.

SPRITE.—Yes, your Majesty, for we have found a little boy who is just as thoughtless and unkind to the dumb creatures round him as the little maid you told us of was kind. He is not *really* a cruel boy, but he does not always think.

F. QUEEN.—Then he must be taught a lesson at once. Fairy subjects, fly to this little boy's home and take away from him all these creatures he treats so badly.

FAIRIES.—We go.

(*Exeunt all but* FAIRY QUEEN, PUCK, SPRITE, *and* TRICKSY.)

F. QUEEN.—Now, Puck and Tricksy, I need you to help me weave my spells; but Sprite must away and whisper in this little boy's ear as he sleeps.

(*Curtain falls.*)

SCENE II

INTERIOR OF COTTAGE

(*Empty cage in window. Table laid for breakfast—bread and water.* JACK'S MOTHER *is busy sweeping. Enter* JACK.)

JACK.—Oh, dear! I am so tired. (*Yawns, and stretches himself.*)

MOTHER.—Tired? Why, you've only just got up, you lazy boy. I've been downstairs a couple of hours or more, and I think a great boy like you might get up and help your Mother a bit, instead of lying in bed sleeping. But there, you always were a thoughtless boy, Jack.

JACK.—Oh! please, Mother, don't scold me, for I feel wretched enough now. I've had such a terrible night, full of dreadful dreams. I thought a whole troop of little people were sitting on my pillow, pulling my hair and teasing me, and then crying out: "That's what you did to Towser! that's what you did to Muff!"

MOTHER.—Ah! you did tease those poor animals dreadfully. I don't wonder they ran away.

JACK.—Ran away! what do you mean?

MOTHER.—Mean? Why, what I say, of course. I haven't seen either of them this morning. I suppose you were teasing them last night and they've run away.

JACK.—I daresay I shall find Towser waiting for me outside; but now, Mother, give me my breakfast or I shall be late to work.

MOTHER.—Help yourself; your breakfast is there on the table. I've had mine long ago. (*Goes on sweeping.*)

JACK.—There's nothing but bread and water. I want some butter and milk.

MOTHER.—Then you'll *have* to want, Jack, for *I* can't give you any. I suppose you forgot to fetch Daisy home last night, or else you must have left the cow-shed door open, for she's gone and I can't find her anywhere. So there's no milk this morning, and we're out of butter, and what's more, if Daisy doesn't come back we shall have to do without it in future, for *I* can't afford to buy it at thirty cents a pound. (JACK *takes a drink of water and makes a wry face, cuts a hunch of bread, picks up his cap and turns to go out, but pauses on his way to the door, seeing the empty cage.*)

JACK.—Why, Mother, Dick's gone!

MOTHER.—Yes, poor bird, and I'm glad of it; as often as not you forgot to feed him, and I'm sure sometimes I've thought I would set him free.

JACK.—Did you let him go then, Mother?

MOTHER.—No; I don't know who opened the door, unless we've had a visit from the fairies.

JACK.—Nonsense! But there! I must be off. (*Exit* JACK. MOTHER *begins to put the breakfast things away, humming, "Oh, dear! what can the matter be?" suddenly stops and screams.*)

MOTHER.—Oh! how it frightened me. A mouse ran right across my foot. Ah! there it is again. (*Jumps upon a chair.*) We shall be overrun with rats and mice now that Muff has run away. Ah! (*screams again, upsets chair, and begins running round room and making dabs at an imaginary mouse with her broom. In the midst of the uproar* JACK *enters, crying.*)

JACK.—Boo-hoo! boo-hoo! Oh, dear! what shall I do? (MOTHER, *still holding her petticoats carefully together, stands still to look at* JACK.)

MOTHER.—Why, Jack, what *is* the matter, and what are you here for at this time of day, when you ought to be at work?

JACK.—Oh, dear! Oh, dear! it's all because I've lost Towser. The sheep scattered and I couldn't collect them without him, and master came up and was very angry, and said I wasn't a bit of use and could go home. It was no good asking him to wait until I'd found Towser, for he saw Tom Kindheart and engaged him on the spot, and his dog soon fetched the sheep in.

(MOTHER *sits down and begins to cry.*)

MOTHER.—(*Sobbing.*) Whatever shall we do now you've lost your place? We were pretty comfortable before, but now there'll be no wages coming in, and Daisy lost—how we shall get through the winter I can't think! Oh, dear! oh, dear! I wish you had been kinder to the animals when we had them.

JACK.—So do I, Mother. I know what it is to do without them now. What with losing my place on account of Towser, and no milk for breakfast, and the cottage seeming so dull now Dick isn't here to sing us his cheery song, and——

MOTHER.—(*Interrupting.*) Rats and mice running all over the place because there's no cat to keep them away.

JACK.—Well! I only wish they'd all come back. I'd never treat them badly again.

(*Bird is heard singing outside. This can easily be done with a penny warbler.*)

MOTHER.—Why, there's Dick, I do declare. Run, Jack and see!

(JACK *goes off, and returns with a stuffed canary or toy bird on his finger, which he puts in cage.*)

JACK.—Pretty Dick, pretty Dick. Oh! how glad I am to see you. (*Noise of barking heard, cat mews;* JACK *goes to door and returns with puss in his arms; dog runs in.*) Good dog! poor puss! Here, Mother, take pussy. (*Places cat on his* MOTHER'S *lap and pats dog.*)

MOTHER.—Listen, Jack: I believe I can hear Daisy.

(*Both listen, sound off stage of cow mooing.* JACK *looks out of window.*)

JACK.—Yes, Mother, there she is; I'll run and get her a feed and

some water. Oh! *how* good I'll be to them all in future! I've learned my lesson, and I'll never tease a dumb creature again.

(*Curtain falls.*)

SCENE III

FOREST GLADE (AS BEFORE)

(FAIRIES *dancing.* FAIRY QUEEN *advances at the end of dance,* PUCK, SPRITE, *and* TRICKSY *close behind her, rest of* FAIRIES *grouped behind.* FAIRY QUEEN *addresses audience.*)

F. QUEEN.

Our play is ended, now that Jack's been taught
To treat dumb creatures as all children ought.
True friends they are, if we but treat them well;
Grateful for kindness, as their eyes will tell:
Willing to render service free to all
Whom, in their own dumb way, they "Master" call.
The Fairies' Lesson over, now we'll say—
Good-by, dear friends, until another day.

(*Curtain falls.*)

THE DISCONTENTED WOODMAN

IN ONE ACT

CHARACTERS

THE WOODMAN. HIS WIFE. HIS BOY AND GIRL.
THE WOOD SPRITE. THE WOOD FAIRY.

Enter WOODMAN, *walking across the stage in shirt-sleeves, ragged trousers, and slouched hat, with a hatchet in one hand. He begins hacking away at a log. A* FAIRY *hidden from the* WOODMAN'S *sight sings:—*

Woodman, spare that tree,
Touch not a single bough,
In youth it sheltered me
And I'll protect it now.

My heartstrings round thee cling,
Close as thy bark, old friend,
Here shall the wild bird sing,
And still thy branches bend.
Old tree, the storm still brave,
And Woodman, leave the spot,
While I've a hand to save,
Thy axe shall harm it not.

WOODMAN (*Stopping work and mopping his forehead*).—The sun is pretty high, it must be time for dinner. Ah, here it comes!

(*Enter his* WIFE *and* TWO CHILDREN.)

WOODMAN'S WIFE.—Well, husband, are you ready for a bite and a drink? It's very hot to-day.

GIRL.—Oh, father, we have just seen such a pretty squirrel, and when we went after him he just turned and looked at us.

BOY.—I should like to get him for you, sister. He was such a pretty fellow.

WOODMAN.—Well, well! Can't you stop chattering and let me have my dinner? It's hard to be kept waiting, after such a long walk and a lot of work.

WOODMAN'S WIFE.—Wait a minute, husband, all in good time.

WOODMAN.—What have you?

WOODMAN'S WIFE.—A hunch of nice brown bread and a piece of cheese fit for a king.

WOODMAN.—Fit for a king, indeed, pretty poor fare for a hard worker. Is that the best you can do? Cheese and cold tea indeed (*muttering to himself*).

WOODMAN'S WIFE (*cheerfully*).—Well, if grumbling's all the thanks I get, we'd best go. Come, children. A better mind to you, husband.

(*Exit* WIFE *and* CHILDREN.)

WOODMAN (*sitting down heavily on log, eating his bread and cheese*).—Ah me, it's a weary world. All that walk, and only this at the end of it. Now, if I only had a tasty sausage or some strawberry jam it would be different. Look at neighbor Jones, what a fine house he has. I wish I were rich.

(*A tremendous clap makes him jump so that the bread falls out*

of his hand, and when he looks up after stooping to get it, he sees before him a tiny man, dressed in red from top to toe.)

WOOD SPRITE.—Your wish shall be granted, my good fellow (*with a jaunty strut, clasping a wooden sword in his hand*), on condition that you tell no one whence your riches come.

WOODMAN.—That I can safely promise.

WOOD SPRITE (*laughing elfishly*).—Don't be too sure. You may live to repent your words. However, in a nest over yonder you will find a tiny egg; if ever your riches get you into trouble, break it, and I shall appear. Now you can go home and need work no more.

(*Exit* WOOD SPRITE, *dancing and twirling gaily.*)

WOODMAN (*rubbing his eyes*).—Have I been dreaming? Anyhow, I'll go and look for the egg. (*Goes and looks, and returns with a small egg in his hand.*) Here it is, sure enough, and so home I'm going to see if the rest is as true. (*As he goes he puts his hand in his pocket and pulls it out again full of money.*)

FAIRY *comes forward and sings:*—

"Mid pleasures and palaces, where'er I may roam,
Be it ever so humble, there's no place like home,
A charm from the skies seems to hallow us there,
Which, seek through the world, is ne'er met with elsewhere.
An exile from home, splendor dazzles in vain,
O, give me my lowly thatched cottage again,
The birds singing gaily that came at my call,
Give me them—and the peace of mind, dearer than all.

INTERLUDE

(*Enter* WOODMAN *looking very ill at ease in a fine suit of clothes, a top hat, large collar and cuffs, and top boots.*)

WOODMAN.—These things are very uncomfortable, and yet Belinda insists upon my wearing them; she says I must now I'm rich. Anyhow, I'll take these cuffs and collar and coat off now. (*Takes them off carefully, and then, heaving a sigh of relief, looks around in a weary way as he hears a noise.*)

WOOD FAIRY *sings:*—

I'd be a butterfly born in a bower,
Where roses and lilies and violets meet,
Roving forever from flower to flower,
And kissing all buds that are pretty and sweet.

I'd never languish for riches or power,
I'd never sigh to see slaves at my feet,
I'd be a butterfly, born in a bower,
Kissing all buds that are pretty and sweet.
Those who have wealth must be watchful and wary,
Power, alas, nought but poverty brings;
I'd be a butterfly, sportive and airy,
Rock'd in a rose when the nightingale sings.

(*Enter* WOODMAN'S WIFE, *very fashionably dressed.*)

WOODMAN'S WIFE.—Here's a pretty to-do, just because you won't tell people where you got your riches. They think you're not honest, and next you'll be taken up for having goods in your possession you can't account for.

WOODMAN (*wearily*).—My dear, I told you that if I mentioned our benefactor the riches would vanish. I'm sure I wish they would. Say another word and they shall.

(*Enter the* CHILDREN, *quarreling over some toy.*)

BOY.—I tell you you can't have it; it's mine. I bought it with my own money.

GIRL.—But I saw it first and said I was going to buy it. It's too bad.

WOODMAN'S WIFE.—Do leave off quarreling, children.

WOODMAN.—Yes, look at them. Two happier, more contented little creatures never lived while we were poor; and as for you, my dear, you never found fault with me then. But (*with an air of determination*) I'll put an end to it. (*He takes the egg out of his pocket and breaks it; in an instant the* WOOD SPRITE *runs on to the stage gaily.*)

WOOD SPRITE.—You see, I was right. Well, you've tried riches, and now you'll be contented because you have found out that wealth does not always bring happiness. Let us have a dance.

(*He flourishes his sword, the piano strikes up a Sir Roger de Coverley* [*Virginia Reel*]. *The* WOODMAN *and his* WIFE *and* TWO CHILDREN *join him and the play finishes with the good old country dance.*)

(*Curtain falls.*)

THE PRINCESS AND THE SWINEHERD

FROM HANS CHRISTIAN ANDERSEN

A PLAY IN ONE ACT

CHARACTERS

THE EMPEROR. THE PRINCESS.
THE SWINEHERD, who is really THE PRINCE.
ATTENDANTS.

STAGE PROPERTIES

SCENE I—Four or five chairs, rugs, golden ball, two silver caskets, rose-bush.

Suggestion—Cover ball with gold paper. Caskets, two boxes covered with silver paper. The rose-bush must be real, if possible.

SCENE II—Front of hut, iron pot, wooden stool, bundles.

Suggestion—The front part of the hut can be made with curtains hung over a large screen.

SCENE I—THE EMPEROR'S PALACE

(*The hall in the palace. Very little furniture; chairs, scattered untidily, here and there, one of them overturned: the rug or carpet is rumpled up. Entrances, LEFT and RIGHT near back of stage. When the curtain rises the* PRINCESS *is discovered playing at ball with four or five* MAIDS OF HONOR. PRINCESS *to LEFT at front of the stage;* MAIDS *placed at intervals round the room. They throw a golden ball from one to the other. The* PRINCESS *throws;* THIRD MAID OF HONOR *misses the catch.*)

THE PRINCESS.—Oh, you stupid, stupid thing! That is the third time you have missed your throw.

THIRD MAID (*muttering*).—It wasn't straight.

THE PRINCESS (*sharply*).—What did you say? Of course it was straight; Princesses always throw straight. (*To the others*) Don't they?

THE OTHERS.—Oh yes! Yes! (*To the* THIRD MAID) How can you say such things?

THE PRINCESS.—Now don't stand chattering there; begin again, and remember, after this, the first who misses shan't play any more. (*They throw again; the* PRINCESS *misses.*)

THE PRINCESS (*angrily*).—There! That was your fault; you can't throw straight any of you, and after all, it's a very silly game.

(*Enter* EMPEROR, *RIGHT entrance. He wears a long embroidered dressing-gown, bedroom slippers down at the heel, and a golden crown, which being a little too big, slips down over one ear.*)

EMPEROR (*fussily.*)—What is all this about? Dear, dear! Playing at ball again, are you? And what a mess you have made! Look at those chairs . . . and the rug . . . and your hair. . . . My dear daughter, you are not fit to be seen; go and tidy yourself directly; there is a handsome young Prince coming to see you.

(*The* MAIDS OF HONOR *bustle about putting things straight.*)

THE PRINCESS (*carelessly tossing the ball and catching it again*).—A Prince? Who is he, and what is he coming to see me for?

THE EMPEROR.—He lives in the next kingdom, and he is coming to ask you to marry him.

THE PRINCESS.—Why! That Prince? I shall certainly not marry *him*, and if he comes I shan't see him.

EMPEROR (*crossly*).—You are a naughty, tiresome girl, and it's time you were married. I am tired of your tantrums and hoity-toity ways. This is the sixth prince you have sent away.

THE PRINCESS.—Well, they were none of them good enough; one had too big a nose, and another couldn't speak without gobbling like a turkey, and the rest were as stupid as owls, but this one is the worst of all.

THE EMPEROR.—He is very handsome, my love.

THE PRINCESS (*tossing her head*).—I don't care! His kingdom is such a little one, and his palace isn't a palace at all, only a plain, ordinary castle with not more than a hundred servants in it, and he doesn't wear a crown. (Do put yours straight, Papa.) Besides, I don't want to get married.

THE EMPEROR (*a little angrily*).—But *I* wish you to. . . .

THE PRINCESS (*stamping her foot*).—And I don't wish to.

THE EMPEROR (*with a big sigh*).—Oh dear! Oh dear! What would the poor dear Empress say if she were alive!

(*A knock at the door. Enter by LEFT, two* SERVANTS *with a silver casket or box.*)

THE EMPEROR (*rubbing his hands joyfully*).—Now we shall see if this won't make you change your mind. This is a present for you, from the young Prince, my love.

THE PRINCESS (*clapping her hands*).—A present! Oh, if it should be a nice little pussy-cat! I want that most of all. (*dancing round impatiently*). Open it! Oh, do open it quickly!

THE EMPEROR.—Gently! Gently! You nearly trod on my toes just now.

(*The* MEN *open the casket, showing a rose-bush with one rose in bloom.*)

ONE MAID OF HONOR.—Oh, what a sweet pink color!

ANOTHER.—So delicate!

ANOTHER.—And how prettily it is formed!

THE EMPEROR.—It is more than pretty, it is charming . . . so poetic!

THE PRINCESS (*touching the leaves*).—O Papa! It isn't anything made at all: it is a natural flower—a common thing—there are heaps like that in the garden.

THE ATTENDANT.—May it please your Highness, this rose-bush is not like other roses. It was taken from the grave of the Prince's father; it only blossoms once in every five years, and its scent is so sweet that, whoever smells it, forgets all care and sorrow in a moment.

THE PRINCESS.—I haven't any cares or sorrows, so you can take it away again; I don't want it, and I don't believe it's anything

but a common garden plant. You can tell the Prince that I won't marry him; and if he comes to see me he can go away again, for I won't see him. Now you can go! I am tired of silly presents and princes. (*Exit* SERVANTS *with casket.*)

THE EMPEROR.—You are a very rude girl!

THE PRINCESS (*catching him by the hands and making him dance*).—No, I'm not. . . . You are only pretending to be cross, you dear old Papa!

THE EMPEROR.—Stop! Stop! You take my breath away!

THE PRINCESS (*obeying*).—Very well; you see what a good daughter I am! I do exactly what you tell me. There! (*pushing him into chair.*) Sit down and I will make you tidy! (*putting his crown straight, and looking at him, head on one side.*) You are really very handsome, you know, Papa, when you don't look cross. (*to the* MAIDS) Don't you think so?

THE MAIDS (*in chorus*).—Yes! Yes! He is really very handsome!

THE PRINCESS.—There! You see, they all think as I do!

(*A knock; enter two other* SERVANTS *with silver casket.*)

THE EMPEROR.—Why! Here's another present for you, my dear. Let us see what this is. It may be something more to your liking.

THE PRINCESS.—No! No! Wait, if it is another rose I shall send it back at once.

THE SERVANT.—Your Highness, this is a nightingale that our Prince has sent you: it sings more beautifully than any other bird in the world.

THE PRINCESS.—What is it made of?

THE SERVANT.—Made of . . . ?

THE PRINCESS.—Yes, what is it made of, stupid? Gold or silver or diamonds or what?

THE SERVANT.—Your Highness, this is a real nightingale.

THE PRINCESS (*shrilly*).—What! An ugly brown thing with feathers and a beak?

THE SERVANT.—It sings most beautifully.

THE PRINCESS (*angrily*).—No, no! Take it away; I won't have it.

THE EMPEROR.—Let us hear it once, my love.

THE PRINCESS (*stamping her foot*).—Take it away *at once!* And tell the Prince he needn't send me any more presents like that. A gold bird or a silver one that you can wind up would be much nicer. (*more angrily still.*) What are you staring at? Take it away at once, or I shall *scream.*

THE EMPEROR.—My dear child, pray calm yourself! (*To the* SERVANTS) Take it away, I beg of you: the Princess is not very well to-day. (*Exit* SERVANTS.)

THE PRINCESS (*crossly*).—Nonsense, Papa, there is nothing the matter with me. (*another knock.*) Oh! If that is another present from the Prince, it shan't come in.

(*Enter* PRINCE *disguised as* SWINEHERD. *His face is stained with brown and smudged with black. His clothes are ragged and old.*)

THE PRINCE.—Good day to you, my lord the Emperor! Can you give me work to do in the palace?

THE EMPEROR (*stroking his beard*).—Why . . . yes. . . . Hum! That is lucky! I want some one to take care of the pigs, for we have a great many of them. Yes, you shall be appointed Imperial Swineherd.

THE PRINCE.—Good . . . er . . I mean . . . thank you, your Majesty; I have been looking for work for a long time.

THE PRINCESS (*to the* MAIDS).—That is why he has such a dirty face, I suppose.

THE MAIDS.—And look at his clothes. . . . Ugh!

THE EMPEROR.—There is a little hut, close to the pig-sties: you can have that for a house if you like.

THE PRINCE.—Thank you, that will suit me very well. I want somewhere to work.

THE PRINCESS.—What do you work at, Swineherd?

THE PRINCE.—Sometimes I make things that pretty princesses like to buy; rattles and toys, and magic pots and pans, and musical boxes.

THE PRINCESS.—Well, we shall see: if you make pretty things I shall certainly buy them, but you don't look as if you could do anything except take care of pigs. I hope you wash your hands before you work.

THE EMPEROR.—My love! My love! You are too forward. Run away now and play; the rain has stopped, and the garden will be looking pretty. Swineherd, you may go to your work.

THE PRINCE.—Thank you, your Majesty. (*exit LEFT.*)

THE PRINCESS (*calling after him*).—I shall come and see your pretty things to-morrow, Swineherd!

(*She picks up ball, throws it at the* EMPEROR, *hitting him, and runs out RIGHT, laughing, followed by* MAIDS.)

THE EMPEROR (*with a big sigh, rubbing his head*).—It is certainly high time she was married!

(*Curtain falls.*)

SCENE II—OUTSIDE THE SWINEHERD'S HUT

(*Entrances, LEFT and RIGHT. When the curtain rises the* PRINCE *is discovered sitting on an old stool in the doorway of the hut. He is polishing a small iron pot or pan.*)

THE PRINCE.—There's a good day's work for you! (*looking at the pot.*) Aha! my fine, my delicate Princess, you will have to pay for this. I can't sell such valuable goods for nothing. But what proud ways and looks she has! she must be humbled. My castle is not big enough to hold such a grand lady. . . . Well, porridge-pot (*holding up pot*), she shall pay a hundred kisses for you, neither more nor less, and then we shall see what we shall see: a good many things can happen to princes in disguise. Dear! (*with a sigh*) it is a pity she is so spoilt: she would make me a fine wife and a pretty one too.

THE PRINCESS (*off the stage*).—Come along! Quickly now, this way! I want to see what the creature has made to-day.

(*The* PRINCE *starts whistling, and rubbing the pot. Enter* PRINCESS *followed by* MAIDS OF HONOR. *They stand in a group, watching: the* PRINCE *takes no notice, but seems busy whistling and working.*)

THE PRINCESS (*after a pause*).—Swineherd!

(*The* PRINCE *starts, looks up, and then begins working again.*)

THE PRINCESS (*more sharply*).—Swineherd! Don't you know who is talking to you?

THE MAIDS (*in chorus*).—He has not any manners!

THE PRINCESS (*going nearer*).—What have you there?

THE PRINCE.—A porridge-pot, your Highness. (*whistles and rubs again*).

THE PRINCESS (*disappointed*).—A porridge-pot! What a stupid thing! Have you not a musical box? (*angrily.*) Stop whistling this moment, and answer me: I can't stand near nasty pig-sties for ever.

THE PRINCE.—This is all I have made to-day, Princess, but if you will wait a moment I shall show you what it can do. (*goes into hut, coming back again quickly with a jug of very hot water which he pours into the pot.*)

THE PRINCESS.—What can a silly old porridge-pot do?

THE PRINCE (*placing it on a stool*).—You will see, if you come close and put your finger on the edge of it. (*The* PRINCESS *obeys, holding up her long skirt and stepping daintily.*)

THE PRINCESS (*with her finger on the pot*).—Oh! Delightful! Listen, all of you! The Chamberlain is having cutlets for dinner to-day: the Treasurer, French soup (I always thought he was a stingy thing): the Court Herald, eggs and bacon and radishes and tea. . . .

THE MAIDS (*in chorus, clapping hands*).—Delightful! Charming! How do you know, dear Princess?

THE PRINCESS.—The pot tells me. The Tailor is having roast beef and Yorkshire pudding: the Cobbler, ham sandwiches and . . . Oh what a lovely pot!

THE MAIDS (*putting their fingers on*).—The Emperor will have bread and milk and honey for supper: the Chamberlain . . .

THE PRINCESS (*interrupting*).—Yes, yes, I know. Oh, and listen, the pot is singing now. Hush! Ah! that is my piece too; I play it with one finger (*dancing round in time and singing*)

Tra la la la la la . . . . . .

THE PRINCE.—It sings much louder if it is put on the fire.

THE PRINCESS.—I must have it for my own, that is very certain.

THE MAIDS.—Yes, yes!

THE PRINCESS.—What will you take for it, Swineherd?

THE PRINCE.—A hundred kisses from your Highness is my price.

THE PRINCESS.—That is absurd: you are out of your senses. (*walks away followed by the* MAIDS. *The* PRINCE *takes up the pot as if to enter the hut with it. He whistles same tune as the pot.*)

THE PRINCESS (*hearing it and coming back*).—I will give you my gold ball for it (PRINCE *shakes his head*), and my golden casket, and my ring with the rubies.

THE PRINCE.—A hundred kisses.

THE PRINCESS (*as if thinking aloud*).—Well, I suppose I must be kind to the poor; I am the Emperor's daughter. (*To the* PRINCE) I will give you ten kisses, and you may take the rest from the ladies of the Court.

THE MAIDS.—No, no, we should not like that at all.

THE PRINCESS (*sharply*).—What are you grumbling at? If I can kiss him, surely you can.

THE PRINCE.—A hundred kisses from the Princess or I keep the pot.

THE PRINCESS.—No, you won't; I must have it. (*To the* MAIDS) Stand round me, then, and spread out your dresses so that no one may see. (*They do so. The* PRINCE *kneels.*) Now count, and be sure you count rightly.

THE MAIDS.—One, two, three, four, *etc.*

(*As the counting goes on, enter the* EMPEROR. *They are all too busy to notice him.*)

THE EMPEROR (*stopping in surprise*).—Whatever is all this noise about? What are they doing near the pig-sties? (*goes closer on tiptoe.*)

THE MAIDS.—Eighty-two, eighty-three, eighty-four, eighty-five, eighty-six.

THE EMPEROR.—What is this? Well I never! (*boxes the* PRINCESS'S *ear with his slipper.*)

THE PRINCESS (*with a cry*).—O Papa!

THE EMPEROR (*in a great rage*).—Don't call me Papa again: I won't have it. I never heard of such a thing . . . an Emperor's daughter kissing a Swineherd? Off with you both, I shall have nothing more to do with you.

THE PRINCESS (*beginning to cry*).—O Papa! I . . .

THE EMPEROR.—Not a word, Miss, not another word. If you are so fond of the Swineherd you shall marry him; I will have nothing more to do with you; you are no daughter of mine. March! March, I say!

THE PRINCESS (*crying bitterly*).—I will never do it again. . . . Oh! . . . Oh!

THE EMPEROR (*angrier than ever*).—Do it again if you like . . . a thousand times. . . . It doesn't matter to me. You shall not enter my doors again. (*To the* MAIDS) Come, all of you, and don't huddle there like scared rabbits. Follow me, and if one of you dare speak to that girl again, out you go, neck and crop! (*drives them all before him to LEFT.*)

THE PRINCESS (*running after him and catching his gown*).—Don't leave me! Oh, don't leave me!

THE EMPEROR (*pulling himself away from her*).—If you and your Swineherd are not out of here in half an hour, I shall send soldiers to chase you. (*exit.*)

THE PRINCESS (*crouching on the ground, still crying*).—Oh! . . . Oh! . . . What an unhappy girl I am! . . . If I had only married the handsome young Prince!

THE PRINCE.—Well, it is no use crying, you will have to come with me now. It serves you right: you laughed at the Prince's gifts, and yet you would kiss a common man like me for the sake of a porridge-pot.

THE PRINCESS (*stopping her sobs*).—Why? How do you know that?

THE PRINCE.—I know many things. Come, get up: we have a long way to walk before we get home.

THE PRINCESS.—I am not going home with *you*.

THE PRINCE.—You will have to: who else will take you in?

THE PRINCESS.—I don't care: I will starve, or die; I'll do anything, but I won't marry you.

THE PRINCE.—Nobody asked you to: I won't have you for my wife. Come along (*pulling her up*), you shall be my servant and clean my house and cook my dinner.

THE PRINCESS (*bursting into tears again*).—O Papa! Papa! How could you be so cruel!

THE PRINCE.—He won't hear you, however loud you cry; you have to come with me. Here, take the pot, I have other things to carry. (*puts it in her hands, enters the hut, and comes out again with package*). Now, come along, or the soldiers will chase us. (*takes her hand and pulls her out by RIGHT*).

(*Curtain falls.*)

KING ALFRED AND THE CAKES

CHARACTERS

ALFRED, KING OF ENGLAND. EARL ETHELRED.
A MINSTREL. THE NEATHERD'S WIFE.

STAGE PROPERTIES

Table, charcoal fire with stones, wooden stools three-legged preferred; bowl with dough, kitchen things.

Suggestion—For the charcoal fire make a ring of stones; put bright red tissue paper in the middle and a few charred sticks over the top. Strew the floor with straw. Have everything as poor and mean and bare as possible.

SCENE—*The inside of the Neatherd's hut in the Island of Athelney. Door LEFT corner. The rough walls are hung round with mugs, platters, pots, pans: the floor is strewn with straw: to the RIGHT a rough wooden table littered with kitchen things: to the LEFT, a charcoal fire built roughly round with stones: a wooden stool near the fire, another by the table. When the curtain rises* KING ALFRED *is discovered sitting on stool, to LEFT by the fire. He is dressed in an old, tattered, brown doublet edged with fur, sandals on his feet, and instead of stockings he wears leather straps bound round, from ankle to knee. His hair is long, reaching to shoulders: his beard rough and uncombed. The* GOOD-WIFE *stands at the*

table busily mixing some dough in a wooden bowl. She wears a coarse apron over very coarse clothes: her head is covered with a shawl, her sleeves are pushed up as far as they will go.

GOOD-WIFE (*turning the dough on to the table and kneading it*).—Now if you would eat well to-night, stranger, you had best leave off dreaming there by the fire and attend to me. These are rye-cakes for the supper. Do you hear? And they must be watched while they are baking . . . (*repeating slowly and solemnly*) watched while they are baking—(*sharply*) do you hear me?

KING ALFRED (*dreamily*).—Yes, my good dame . . . washed while they are baking. . . .

GOOD-WIFE (*turning round, hands on hips, and looking at him*). Washed! Watched, I said: I declare the fellow's half asleep! Wake up, my man, and listen to me! (*kneading dough again*). They must be watched well, for they are quick to burn . . . (*dividing the dough into four parts and making it into round cakes*) and what's more, you shall be the one to watch them for me.

KING ALFRED (*still dreamily*).—I . . .?

GOOD-WIFE.—Yes, you . . . you might as well do that as sit dreaming over the fire all day. I have enough to do as it is: there are the pigs and the hens to feed, the beasts to see to, and a-many more things besides. I cannot spare the time, although I am loath to leave my fine cakes with such a lazy fellow.

KING ALFRED.—I will watch them carefully for you, good dame.

GOOD-WIFE (*going to fire and putting the cakes carefully on the top*).—So be it. Now, look you, they must be brown and yet not too brown, and when one side is nicely done you must turn them, but carefully. So—(*showing him*).

KING ALFRED.—Yes . . . yes . . . it shall be done, never fear.

GOOD-WIFE.—But mind this, my man, they will burn if you do not take care, for the charcoal is hot. You must never take your eyes off them a moment—never a moment, do you hear? or you will go hungry this night to bed, and to-morrow and the next day. We cannot afford to waste good food in this lonely place.

KING ALFRED (*half to himself*).—Ay, it is a lonely place, and savage enough and safe enough for even me.

GOOD-WIFE (*going to the door, LEFT corner*).—Look to your work now, or it will be the worse for us all. (*Exit.*)

ALFRED.(*resting his head on his hand, and speaking slowly, as if thinking aloud*).—Ay, my good dame, there you spoke true. I have more work to do than you think, and if it be not well done it will indeed be worse for us all. O England! . . . O my country! O my poor people, down-trodden by the bitter, treacherous Danes, what can I, thy King, do to save thee? Here in hiding—alone—with my brave soldiers scattered—defeated—slain . . . what can I do for thee, O my country? (*rising.*) While there is life in me, and a brain to think and a heart to beat for thee, I will never give in . . . the tide *must* turn. . . . There is a Power above that will never desert the righteous. . . . Courage . . . Courage . . . We shall conquer these foes that come only to steal our gold and our lands, our lives and our peace. England shall be freed from these robbers. (*sits down.*) . . . Oh, if ever I win back my crown and kingdom, I solemnly vow that the third part of my time I will give up to deeds of charity—the third part of my gold shall be given to the poor—the . .

GOOD-WIFE (*entering angrily, and rushing to the fire*).—They are burnt . . . they are black. . . . I smelt them burning half way down the path. Shame . . . shame on you, stranger! O the fool that I was to leave them with you! . . . O fool, fool that you were to let them burn! Look at them . . . Look at them . . . (*shaking one in his face.*) Good-for-nothing, you would rather starve than work . . . you would see good food burn and never trouble to lift a finger to save it . . . a pretty fellow, i' faith! (*a knock is heard at the door.*)

KING ALFRED.—What was that?

GOOD-WIFE (*angrier than ever*).— . . . A pretty fellow! You have eaten my food and slept under my roof for six weeks, and what do you give me in return? You burn my cakes, my good rye-cakes, till they are fit for nothing but to throw to the pigs! Oh! (*slaps him on the cheek: enter* EARL

ETHELRED, *followed by* MINSTREL). Out of this house you go this very moment! . . . I will have no more to do with you and your lazy, wasteful ways. . . .

ALFRED (*interrupting*).—Ah! At last! My friend, my friend, what news?

ETHELRED.—Good news, my Lord!

GOOD-WIFE (*open-mouthed*).—My Lord! What next, I wonder!

THE MINSTREL (*kneeling and kissing the* KING'S *hand*).—Ah! your Majesty! How good it is to find you safe and well!

GOOD-WIFE.—Your Majesty! The man's mad!

KING ALFRED.—The news! I pray you, if you love me, speak! I know nothing!

ETHELRED.—Hubba the Dane is dead!

KING ALFRED.—God be praised!

THE MINSTREL.—Their Raven Standard is taken. We have it.

ETHELRED.—Hubba grew too bold. Wales he invaded, leaving every town in flames: then came he to Devon, and there he met his fate at Kenworth Castle.

THE MINSTREL.—The Devon men were few but desperate, they determined to conquer or to die. . . .

KING ALFRED (*impatiently*).—Yes, yes!

ETHELRED.—By night they rushed on the enemy, and took them unawares. Hubba was slain, the Standard taken, and their whole army fled in breathless fear. . . .

THE MINSTREL (*triumphantly*).—'Tis said their Raven Standard brings them fortune; now they have lost it, now the tide is turned. I will make a song of it, O King! . . .

GOOD-WIFE (*very much frightened*).—King!

THE MINSTREL.—And I will sing it to thee, King, on the day when thou shalt come again to thy throne.

KING ALFRED.—Ay, the tide is turned. . . . I feel it . . . we shall conquer now. Do you, each of you, take a different path over the country and spread the news far and wide. Bid all who love England and King Alfred come swiftly and well armed to Selwood Forest.

GOOD-WIFE.—King Alfred! Burned my cakes black as cinders . . . oh, mercy . . . mercy . . . and I boxed his ears for it! . . . Woe's me! . . . woe's me! . . .

KING ALFRED (*smiling*).—This good soul hath sheltered me right nobly all these weary weeks.

GOOD-WIFE (*falling on her knees*).—Mercy, mercy, Sir King!

KING ALFRED.—'Tis I who cry to you for mercy, my good dame. I burnt your cakes; but have no fear, ye shall have a gold piece for every one, and my hearty thanks for all your kindness. (*raising her to her feet.*) I fear my dreamy ways were not much to your liking. But come, my friends, let us go, and speedily. There is no time to be lost; (*going to door*) we have each our work to do.

ETHELRED AND MINSTREL (*following*).—Ay, forward! Forward!

KING ALFRED.—To Victory! (*Exit all save* GOOD-WIFE.)

GOOD-WIFE (*at the door, watching them out of sight*).—To think of it . . . to think of it . . . (*going to table*). And I never knew . . . I never guessed . . . (*taking up a cake*). Ay, black as a cinder . . . to think of it, and I slapped him with these very fingers . . . (*in a whisper.*) Him! The King . . . our good King Alfred. (*loudly.*) God save him! . . . God give him victory over his enemies!

(*Curtain falls.*)

OUTDOOR GAMES

The Wheelbarrow Race

THE wheelbarrows are boys on their hands and knees. They arrange themselves in a row on the lawn, with another boy standing behind each one.

When the signal to start is given, the boy who is standing takes hold of the ankles of the one in front of him and lifts his knees from the ground, causing him to walk on his hands, at the same time pushing him forward.

The pair who first get past the winning-post win the race.

Bull in the Ring

A boy is chosen to be "bull." The remainder of the players join hands and dance round him. The bull folds his arms, rushes at the circle, and tries to break through. If successful, the other players attempt to catch him; if he is caught, the player who caught him is "bull" next time.

The Cat Tiggy

As soon as the players have agreed to play this game they cry: "The last perched is cat," at which every player tries to get a perch, that is, to get his feet off the ground. The players may stand on a piece of wood, sit on a gate, or, in fact, do anything so long as their feet are off the ground. The last perched is the cat.

The other players beckon to one another, changing places by signal, or going to new perches, and the cat has to touch them

before they have perched themselves. If the cat should succeed in touching anyone who is off his perch, the player touched becomes cat.

He cannot touch the old cat until the latter has been perched once.

"Here Goes Up for Monday"

This game is played by seven children, each taking the name of one of the days of the week. The players stand facing a high wall. Sunday takes the ball, and throwing it high against the wall, calls out the name of one of the players, who must try and catch it before it reaches the ground, the others meanwhile running away. If the ball is caught, it is thrown against the wall by the catcher, and he in his turn calls a name; when a player misses the ball he loses a point, or an "egg," as it is called. He must then pick up the ball and throw it at the other players, and if one is hit, that player also loses an egg, and has in his turn to throw the ball against the wall.

The player who, when throwing the ball at the other players, fails to hit one, must himself throw the ball against the wall. The loss of three "eggs" puts a player "out"; the last one having an egg left wins the game.

The Sack-Race

For this race each boy is put into a sack, not fastened, however, higher than the neck. The boy who is to start the race lays them in a row, flat upon the ground, and at the signal each does his best to roll, hop, or in some way get past the winning-post.

If sacks are not obtainable, the arms should be tied to the sides at the elbows and wrists, and the legs tied together at the knees and ankles.

Egg-Cap

The players, who may number from three or four to twelve, arrange their caps in a row against a wall, and put three small stones, called "eggs," into each cap. A player is chosen to begin the game. He stands at a distance of about ten feet from the wall, and tries to roll a ball into one of the caps.

If he is successful, the boy into whose cap the ball has fallen must pick it out and throw it at the other players, who in the meantime have run away. If he hits a player, that one loses an egg, and must then roll at the caps.

If a player, when rolling, fails to get the ball into a cap, he loses an egg, and another player takes the ball. The last player having an egg left in his cap wins the game. When a player's eggs are all gone, he is out of the game, and must leave, taking his cap with him. Instead of using caps, holes may be dug in the ground, but it is, of course, more difficult to get the ball into a cap.

Tag

Eighteen persons are necessary to play this game properly. The players, except two, arrange themselves in a ring, two deep, leaving enough space between two pairs to allow a person to dodge between easily. The two players who are out of the ring are called the "it" and the "outplayer." The game is for the "it" to try and touch the "outplayer," who can dodge in and out or round the ring, and when he is tired or wishes to, he can stand in front of one of the pairs inside the ring, the outside member of which then becomes the "outplayer." If the "outplayer" is touched he becomes "it," and the previous "it" must take refuge in front of a pair, and so on.

The Three-legged Race

This race is run in couples, the right leg of one boy being tied tightly to the left leg of another at the thigh, knee, and ankle. The couple first passing the winning-post win. It often happens that those who dash off to be first topple over, which enables a slower and surer pair to win the race.

Touch Wood and Whistle

This is very similar to Tag, but any player, unless he is touching wood *and* whistling is liable to be "it." Very frequently in the excitement of the game a boy touches wood and forgets to whistle, but one is no good without the other.

"Dicky, Show a Light!"

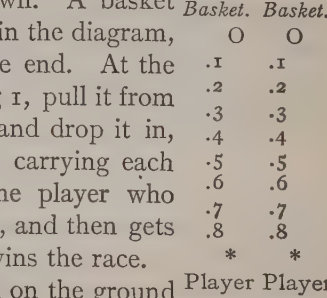
This game is a splendid one for a dark night; it is a kind of Hare and Hounds, in which the hare, called "Dicky," shows a light to guide his hunters.

The player who takes the part of "Dicky" is provided with a dark lantern, and is allowed a few minutes' start. The hunters then go after him, and they also carry a lantern, the light of which they must show the whole time, while "Dicky" need only show his light about once every two minutes. If the hunters get quite astray, and "Dicky" is too long showing his whereabouts, they cry; "Dicky, show a light!" He must then flash the light in their direction.

A good "Dicky" never keeps the hunters too long without a light, but dodges round the party like a will-o'-the-wisp, first here, then there, making the most of his two minutes to get to the other side of a hedge or fence, or right round the party in an opposite direction. It is a good idea to fix upon some boundary beyond which "Dicky" may not go; he has such advantages over the other players that if he can wander wherever he likes there is little chance of his being caught.

The Peg-Gathering Race

A number of rows of pegs are driven lightly into the ground, one row for each player, sufficient room being left between the rows for a person to run up and down. A basket is placed at the end of each row, as in the diagram, the players standing at the opposite end. At the word "Go," the players rush to peg 1, pull it from the ground, carry it to the basket and drop it in, then run back to peg 2, and so on, carrying each peg separately to the basket. The player who first puts all his pegs into the basket, and then gets back to the place he started from, wins the race.



Stones or potatoes may be placed on the ground and used instead of pegs if these are difficult to obtain.

The Menagerie Man

Each of the players, except two, takes the name of an animal, such as lion, leopard, panther, etc.; one of the two remaining is called the buyer, and the other the seller. The seller is supposed to own a menagerie, so he traces an imaginary cage upon the ground, and puts his beasts into it. The buyer then comes to the menagerie and pretends to knock at the door.

The seller asks: "Who knocks?" The buyer replies: "A merchant." The seller asks: "What do you want?" The buyer says: "To buy an animal." The seller then asks: "How much will you pay for it?" The buyer then mentions some price—say, ten dollars.

The seller then invites the buyer to enter, asking him at the same time what kind of animal he wishes to buy.

If an animal that the showman has is mentioned, he tells it to run out, at which it runs away from the cage. Before the buyer may run after it, he has to pay the price agreed upon, giving as many little taps on the hand of the seller as he has mentioned dollars. He then pursues the animal he has bought; if it can get back to the cage without being caught, it takes a new name; if, however, the animal is caught, the buyer pretends to cut off his ears, after which it is considered to be a dog. The dog or dogs have then to help to catch the other animals. The game ends when all the players have been caught and become dogs.

"I Spy"

This game is a mixture of Tag and Hide-and-Seek. The players divide themselves into equal sides, each side choosing a captain. The two captains decide which side shall hide first, helping their sides in hiding and seeking, by telling them good places, and so on.

The seekers mark out a base, and stay there with closed eyes or otherwise so that they cannot see where the hiders go to conceal themselves. The hiders give a whistle or shout to

show that they are ready. The seekers then begin to look. As soon as a hider is seen, the player who sees him shouts: "I spy," and all the seekers rush home, for on being called the hider must come out, and he must try to tag a seeker before the home is reached. A hider need not wait to be called, but can try to tag a seeker whenever he sees a chance. The seekers should never pass a place where there is the least chance of any one being hidden, for if they are cut off from home they are sure to be caught. If the seekers are successful in spying out the hiders without being caught they go out to hide, but if most of the seekers are tagged the hiders go out again.

Widdy-Widdy Way

This game is sometimes known as "Warning." A "home" is marked out against a wall. One of the players is chosen to be the "leader," and begins the game by taking his place in the home. As soon as the "leader" is ready he clasps his hands together, kicks the wall, shouts: "Warning!" and starts in pursuit of the other players as in Tag, except that his hands must not be unclasped. If the leader unclasps his hands he cannot touch any player till he has gone home and started afresh. If the "leader" can be caught as he returns, he must give the one who caught him a pick-a-back or ride home.

As soon as the "leader" touches a player, the two rush home to avoid giving pick-a-backs. After joining hands, kicking the wall, and shouting: "Warning!" as before, the two start together in pursuit of the others; in this way the game goes on, player after player getting caught, and having to join the chain. The players who are still free try to break the chain without being touched in order to get a ride home and to put off the time when they must themselves be caught, for as soon as the chain is broken the players composing it must run home.

If the playground is a small one it is best to arrange for a "widdy of six"; that is to say, when six are caught they must go in pursuit together, but the next one caught must start a fresh "widdy." This prevents the chain getting so long as to stretch right across the ground and so to make dodging impossible.

Hare and Hounds

Hare and Hounds is a good country game. Two boys, who should be not necessarily the best runners, but the liveliest dodgers of the party, represent the "Hares," and the remainder are the "Hounds." The hares carry with them bags full of paper torn up in very small pieces, which they scatter behind them as they run, to act as scent. By this the hounds track and endeavor to capture them. The hares, of course, try to mislead them by all sorts of doublings and twistings, or by going over difficult country. The hares are not allowed, by the rules, to make false starts at any part of the run, or to separate and lay two scents. They are considered caught if the scent gives out.

The hounds will find a little discipline a wonderful help to them in baffling the tricks of the hares. A captain and whipper-in should be chosen, the former to lead, the latter to look after the stragglers if there happen to be any. So long as the scent is strong the whole pack simply follow the captain, keeping well together, but when he is not sure of his way, he blows the whistle which he carries, and the pack halt. The whipper-in stands at the last point at which the scent can be seen, holding a handkerchief in his hand. The pack run round and examine the ground to find the lost scent. The moment they find it the captain blows his whistle and they go off again.

Hockey or Shinney

The game is usually played by twenty-two players, eleven on each side. Five play as forwards, three as half-backs, two as backs and the eleventh as goal-keeper. The ball is an ordinary cricket ball painted white.

The ground is rectangular in form, the sides measuring 100 yards and fifty yards. The long sides are termed side lines, the short sides "goal lines." The goals are formed by two upright poles, twelve feet apart, with a horizontal bar seven feet from

the ground, and are placed in the center of each goal line. Fifteen yards in front of each goal a twelve-foot line is drawn parallel to the goal line. Quarter circles are drawn from the extremities of this line, with the goal posts as centers. This curve is called the "striking circle," and the ball must be struck by one of the attacking side from a point within the striking circle in order that a goal may be won.

The game is commenced by a "bully"—that is, the ball is placed in the center of the field and the two opposing center "forwards" strike the ground in front of the ball and then each others' sticks above the ball. This is done three times. Then the game begins.

When a goal has been scored, and at half time, when the sides change over, the ball is again started by means of a "bully." The only stroke allowed in striking the ball is from right to left, no left-handed or back-handed strokes are allowed.

A player may stop the ball with any part of his body; but must only drive it by means of his stick.

No kicking, collaring, tripping or rough play is allowed in this game. When a ball is driven over a side line it must be rolled back by a player on the opposite side.

When the attacking side hits the ball over the goal line a "bully" takes place twenty-five yards from the spot where the ball crosses the goal line. If the ball is played behind by the defending side a "corner" is allowed, that means a full hit, and is taken by the attacking side from the nearest corner flag, the attacking side being outside the striking circle and the defending side behind the goal line. As soon as the ball is struck they may rush forward.

When a player strikes the ball any one of his side nearer the enemy's goal line than he is ruled "off-side," and must take no part in the game unless there be at least three of the enemy between him and their goal-line. He cannot become "on-side" again until another player strikes the ball. If the rules are broken a "free hit" is given against the offenders. When a "free hit" is taken no member of the offending side is allowed within five yards of the ball.

Two umpires are necessary for this game, one on each side.

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SNOW GAMES.

Dog-Stick and Splent

A tongue-shaped piece of wood is required tapering at one end, rounded at the other and slightly hollowed so as to form a cup to hold the ball. Instead of the bat a club, called a dog-stick, is used—a boundary line is drawn and the player must strike the tongue-shaped end of the splent in such a way as to shoot the ball up, and then before it falls to the ground he must strike it with the club, sending the ball as far as possible beyond the boundary line. The other players may stop the ball if they can.

The farther the ball flies the better for the player, as he measures the number of stick lengths from the boundary line and counts them as points.

The player is out if he misses the ball, or fails to strike it beyond the boundary-line, or if he is caught out.

Snow Games

It is very easy for boys and girls to invent snow games for themselves; but a few hints as to how to set about it may be useful.

First and foremost it should be remembered that snowballs should not be weighted with stones or heavy substances, which render them dangerous missiles instead of harmless and amusing ones.

Freshly-fallen snow should be chosen, and before the game commences, the players should be divided into sides and each side should employ all its members to make snowballs as fast as they can. It is very unfair for the elder members to set the little ones to this work, while they are enjoying the fun of aiming the balls.

The side which works the quicker naturally has the larger supply of ammunition and stands a better chance of winning.

Lines should be drawn between which the combatants stand to fight, and whichever side drives the other side over the line is counted victor.

Jack, Jack, the Bread Burns

Two of the players represent a Master baker and his man Jack; the remainder of the boys seat themselves on the ground, one behind the other, and hold each other tightly round the waist. These are supposed to represent loaves of bread. Suddenly the Master cries out "Jack, Jack, the bread burns," and he and his man rush at the loaves and try and detach the first loaf. If they succeed the loaf becomes theirs and is placed in the "shop" (a certain spot chosen previously) for sale, there to await other loaves. The chief thing for Jack and his Master to do is to take the loaves unawares. If, however, the foremost loaf succeeds in catching either Jack or the Master and holding him so tightly that he cannot get away, the one caught must become a loaf, but goes to the rear as soon as it is decided he is fairly caught. The game continues either until all the loaves are caught or until Jack and his Master are caught.

Buck, Buck, How Many Fingers Do I Hold Up?

Three boys play this game, Master, Buck, and Frog. Buck places himself against a wall, bends his back, supporting himself by placing his head against the Master's stomach. The Master is supposed to render Buck as much assistance as possible.

The Frog leaps upon Buck's back and asks him—"Buck, Buck, how many fingers do I hold up?" at the same time holding up some of the fingers of his right hand. If Buck guesses correctly, he is at once released, if not Frog asks him again and again until the right number is guessed when Buck becomes Master, Master becomes Frog, and Frog becomes Buck.

The Sergeant

One of the players is chosen as sergeant and takes his station upon a spot from which he is not allowed to move. The remainder range themselves in a line in front of the sergeant, and are bound to carry out his instructions. His commands never

exceed two: "Do as I do," and "Do not laugh." This sounds very simple, but as the sergeant makes the most absurd postures he can think of, and which his soldiers are bound to copy, it is very seldom that all obey the second command "Do not laugh." Whenever a soldier laughs he is turned out of the ranks, and when half the soldiers have lost their places the other half are entitled to mount their backs and ride them, the Sergeant urging on the unwilling steeds with a knotted handkerchief.

Duck on the Rock

This is a very good game. A large block of stone is secured and set up. At about fifteen to twenty yards from this block a line is drawn. The space behind the line is "home." The players provide themselves each with a small stone, and taking up their station on the line proceed to throw at the block of stone in turn; the one whose stone is farthest from the block becomes "Duck."

He must place his stone on the block of stone and the others proceed to try and dislodge it. Should the first player succeed in doing this he must run and pick up his own stone and endeavor to run back to his "home," before "Duck" can replace his stone and touch him.

If "Duck" is able to touch him the one touched becomes "Duck."

There are usually a goodly number of misses before the stone is knocked off the block, and as everyone of the players is bound to run and pick up his stone before running home, "Duck" is almost certain to catch one, although he must replace his stone on the block before doing so. If the one caught is very quick, he may sometimes catch "Duck" again as he has to run back, after touching anyone, get his stone and run home. The last one touched always becomes "Duck."

Follow My Leader

One of the players is chosen as leader and the rest range themselves in a long row behind him. The leader begins to

advance and those behind must follow wherever he goes and copy his every action.

Any boy failing to do this must go to the end of the line, and as all the boys prefer the front they watch each other most anxiously to see if any should fail to carry out the rule.

When a certain time has elapsed it falls to the part of the first boy to become leader and the previous leader goes to the rear. It is fairer to draw lots as to the order in which the boys shall follow, as naturally each one wishes for a chance to become leader.

Aunt Sally

This is such an old and popular game that it will need very little description. To be correct Aunt Sally should have a negress' head adorned with a turban, and a smart gown covering her wooden body; between her lips is fixed a short clay pipe. But any one can rig up an Aunt Sally for himself: an ordinary block of wood, the upper part of which may be painted to represent a face will serve equally well. A hole must be bored in the wood where the lips are painted, so that the pipe may be made fast.

The players take up their stand at twelve or twenty yards from the figure, the distance being agreed upon between the players and marked out. Upon this mark the players take their stand armed with a short thick stick. Each one endeavors to throw the stick in such a way that Aunt Sally's pipe is knocked out of her mouth.

For every time this occurs the player scores a point.

The player who gains the most points wins the game.

Hide-and-Seek

All the players hide except one, who stays at the point called home, with his eyes hidden. The hiders separate and hide in various places, but the last to be hidden cries "Whoop," and the Seeker then starts to find them. The hiders must try and steal home without being caught by the Seeker. If they can

manage this they can all hide again, if not the one caught must become Seeker.

Fives

In this game the players take turns to hit a ball with the hand above a line marked on a wall; sometimes bats are substituted for the hand.

That is the simple game of fives; but the more complicated kind is played in a court.

There are two kinds of courts, the Eton court and the Rugby court.

In both courts the players try to hit the ball above a line about three or four feet from the ground or ledge on the front wall in such a way as to prevent their opponents hitting it back again over the line before it has touched the ground for the second time.

The game begins by one of the players "serving" the ball by striking it against the wall and making it fall into the side of the court where his adversary is. The latter returns it and the game goes on until one of the players misses the ball, or else fails to strike it above the line. The miss counts a point for the adversary. The game consists of fifteen points; but the rules vary according to the different courts in which they are played.

Shoes without nails must be worn for this game.

Marbles

The best method of shooting a marble is the following: Bend the thumb at the first joint and grasp it firmly with the middle finger. Place the marble above the thumb and hold it in position with the first finger, then suddenly, having taken good aim, let fly the thumb and the marble will be shot forward with considerable force.

Bridge-Board

The bridge consists of a narrow piece of board in which nine arches have been cut.

The arches should be about an inch in height and width, rather less in width.

Numbers are placed over the arches, but it is better not to place them in consecutive order—they might be—1, 5, 0, 6, 2, 4, 0, 3, 0.

One of the players becomes bridge-keeper, the others take turns to aim at the bridge. If a marble passes under one of the arches the player who aimed it claims the number of marbles marked over it from the bridge-keeper. If he fails to shoot through an arch one marble must be paid to the bridge-keeper.

The bridge-keeper should be changed every round.

Bounce-Eye

A circle, about a foot in diameter, is made on the ground; every player subscribes a marble to make a pool, and these marbles are placed in the center of the circle.

The players draw lots to decide the order in which they shall play. The first player takes a marble between his first finger and thumb and holding it near his eye takes aim at the center of the marbles and lets the one he is holding drop.

As many marbles as he can scatter outside the ring he may claim for his own; but if he does not succeed in putting any outside the ring the one he made the attempt with must remain forfeit to swell the pool.

When all the marbles in the pool have been won the game is ended.

Handers

A small hole is made in the ground about a foot from a wall, or background of any kind. The players decide the order in which they shall play by each rolling a marble towards the hole and then fixing the order by playing according to their position, those nearest the hole playing first and so on. The players then subscribe so many marbles each and the first player takes the whole of them in his hand and rolls them towards the hole.

As many as fall into it he claims for his own; they must fall

straight in, any that rebound into it from striking against another marble do not count.

Then the next player takes the remainder of the marbles and tries his luck, then the third, fourth, and so on. When the marbles are all used up, or very much reduced in numbers, a fresh supply must be subscribed for, so that every player may try his luck.

Teetotum Shot

This game is very much liked by boys. A teetotum is set spinning and for the privilege of shooting at this each player must pay the one in charge of the teetotum one marble. If the shot hits the teetotum the number uppermost on it when it falls shows the number of marbles which the one in charge must pay the successful player.

Bounce About

This game is to be played by two, three or four players, never more. Each player must know his own marble or "bouncer." The first player throws down his "bouncer," No. 2 pitches his "bouncer" at No. 1's. If he hits, No. 1 must pay him a marble; not the one struck, as it carries a distinctive mark on it and must remain on the ground; No. 3 then tries, and then No. 4. No. 1 then picks up his "bouncer" and tries his luck, and so on.

When there are two or three "bouncers" on the ground the owner of the one struck must pay.

Eggs in the Bush

This is not a game of skill, but merely a guessing game. Each player in turn holds the "eggs." He may have one or half a dozen marbles, if he can hold them, and the opponents guess in turn how many "eggs" he holds.

Those who have guessed correctly can claim the number of marbles from the egg holder; those who guess incorrectly must pay the difference in the numbers. For instance, if anyone says "two," and the holder has "three," he must pay the holder one.

Three Holes

Three holes are made in the ground, each of them being about an inch deep and two inches in diameter. They should be about a yard apart, either in a line or any other position; but they must be numbered 1, 2 and 3. A starting line two yards from the nearest hole is fixed and the first player aims for hole 1.

If he succeeds each of the other players must give him a marble and he may then try for hole 2, and again hole 3 if he is so fortunate. Each success entitles him to another shot.

If the first player fails to make the first hole, or having made that misses another, his "taw" or marble must remain on the ground. The other players are then allowed to aim at it and take another stroke off it; if they succeed, the owner of the taw must ransom it by an ordinary marble. No taw may be hit more than once by the same player.

One Hole

Either a cap is placed upon the ground or a round hole is dug, it does not matter which. Each player takes ten marbles in his hand and tries to throw the whole of them into the cap or hole. He reclaims all that go in, but leaves those that fall outside where they drop.

The players throw in turn; any player who gets the whole ten marbles into the cap takes the marbles that are lying around.

Knock Out

The players draw lots for the order in which they shall play. A line is then drawn two yards from a wall. The first player takes a marble and rolls it against the wall, the second follows suit and then the rest. Any one of them whose marble in the rebound strikes another marble may claim all the marbles on the ground.

If a ball rolls over the line it must be replaced on the line at the point it crossed it.

Long Taw

This game is for two players only. The first player places a marble on the ground, the second places another two yards off in a line with it. At two yards' distance from the last marble the first player shoots another, which is generally a prize marble or taw. If he hits the marble nearest to him he pockets it and has a shot at the next, which he may also pocket. Then the marbles are set again and the second player tries his luck.

If the first player should miss, the second player may aim at all three of the marbles on the ground, including his opponent's taw.

Picking the Plums

Two straight lines are drawn parallel to one another, from four to eight feet apart. Each player places two or three marbles, which are called "plums," upon one of the lines, leaving about an inch between them. The players in turn "knuckle down" at the other line and shoot at the "plums," those hit being kept by the successful shooter, but a second shot is not allowed till the next round.

If a player fails to hit a "plum," he must add one to the row to be shot at.

Ring Taw

This game is somewhat like the previous one. A circle about a foot in diameter is drawn on a piece of smooth ground or asphalt; each player puts an agreed-on number of marbles in the circle, as nearly as possible at equal distances from one another. Around this ring another must be drawn at a distance of from six to seven feet; this circle is called the "taw-line."

The first player starts from any point on this line, and shoots at the marbles in the inner circle; if he knocks one out and it goes outside the larger ring he takes it, and may shoot again from the place where the marble he originally shot with stops, and may continue to shoot until he fails to knock a marble out.

Whenever a player fails to knock a marble from the circle his own marble must remain where it stops, unless it rolls out of the outer circle, in which case he may pick it up. The players follow one after the other, keeping the same order throughout the game, one succeeding another as soon as he fails to knock a marble from the ring.

The marbles that have been shot and which remain in either of the rings are treated in the same way as the marbles originally put in the small ring.

The game goes on until both rings are clear.

Pyramids

The marbles for making a pyramid are supplied by one boy, who charges one marble a shot to every boy who wishes to play. A ring a foot in diameter is drawn upon the ground, and in the center three marbles are placed, arranged in a triangle, with a fourth on the top of them, forming a pyramid. Any marbles knocked out of the ring become the property of the shooter, who also retains the marble he shot with, even if it remains in the ring, should he knock one out; but if his marble stops in the ring without knocking another out, it is claimed by the owner of the pyramid.

The players shoot in rotation whether they win or lose. The pyramid must be re-made each time it is knocked down.

Spanners

This is a good game for two players only. The first player shoots a marble, and the second tries to shoot his marble against or within a span of it. The players shoot alternately, but when one is successful he has another shot, and the other player pays him a marble.

Leap-Frog

This is the simplest and at the same time one of the best of overback games. The players stand behind each other, forming a long line; the first player in the line makes a back, the

second leaps over, and makes a back a few feet farther on, the first one still remaining down. The third player goes over first one and then the other, forming another back in the same manner as the second, and so on until all the line are down. Then the boy who made the first back starts again, and leaps each of the backs and makes another back at the end, the next player does the same, and thus a continually advancing line of backs is formed.

If the players are anxious to get over the ground quickly they can run a dozen yards or so before "going down." The whole fun of the game lies in its being played smartly and with spirit.

Fly

In this game a leader and a boy to make first back are chosen. The leader does some trick as he leaps the back, which the other players must exactly follow; any player making a mistake takes the place of the one who is giving the back.

The variations are almost numberless, but one or two may be mentioned. For instance, to fly the back with the left hand only, or to place a cap on the back as you leap and pick it off before touching the ground.

The back as soon as released takes the place of the leader, who becomes second player.

Tom Tiddler's Ground

A line is drawn to separate Tom Tiddler's Ground from the rest of the playground or field. Tom Tiddler takes up his position in this space and tries to touch anyone who intrudes upon it. Any player he touches becomes a prisoner and must stand behind Tom Tiddler until a comrade comes to rescue him. To release the prisoner, the rescuer must touch him without being previously touched by Tom; if, however, Tom touches the rescuer first, he also becomes a prisoner. The whole spirit of the game lies in there being plenty of invaders, and in the prisoners being rescued quickly.

Mulberry Bush

"Here we go round the mulberry bush,
The mulberry bush, the mulberry bush,
Here we go round the mulberry bush
On a cold and frosty morning.

"This is the way we wash our hands,
Wash our hands, wash our hands,
This is the way we wash our hands
On a cold and frosty morning.

"Here we go round the mulberry bush,
The mulberry bush, the mulberry bush,
Here we go round the mulberry bush
On a cold and frosty morning.

"This is the way we wash our clothes,
Wash our clothes, wash our clothes,
This is the way we wash our clothes
On a cold and frosty morning.

"Here we go round the mulberry bush,
The mulberry bush, the mulberry bush,
Here we go round the mulberry bush
On a cold and frosty morning.

"This is the way we go to school,
We go to school, we go to school,
This is the way we go to school
On a cold and frosty morning.

"Here we go round the mulberry bush,
The mulberry bush, the mulberry bush,
Here we go round the mulberry bush
On a cold and frosty morning."

The children form a ring, all joining hands and dancing round while singing the first verse. When they come to the last line of the verse they unclasp hands and twirl rapidly round and then stand still and commence singing the second verse, suiting the action to the word, that is to say, pretending to wash their hands.

When that is finished the first verse is sung again as a chorus, the dancing commences afresh, and the first verse is repeated as a chorus after each different verse.

The verses may be varied and carried on for any length of time: "This is the way we comb our hair," or: "This is the

RING O' ROSES.

way we sweep the floor," and so on, just as long as the leader of the game fancies.

When the children "go to school," they should walk two and two, very quietly, but if the leader chooses to suggest: "This is the way we come out of school," they should jump and skip about.

Ring o' Roses

This is a game for very little children. They form a circle holding hands, and walk round singing the following verse:—

"Ring-a-ring o' roses,
A pocket full of posies,
Hush-a, hush-a, we'll all tumble down."

When they sing, "We'll all tumble down," over they go, roly-poly on the grass. Then they get up again, and the game begins afresh.

Top Games

To spin a top, take a stout piece of string with a knot about an inch from one end. To the other end fasten a metal button. Unravel the end of the string below the knot and slightly wet it. Take the top in the left hand and lay the wetted end of the string along the top, just above the peg, and hold it tight with the thumb. Now take the string in the right hand and wind it round the top. When you have wound up all the string put the button between the middle and third fingers, place the thumb under the peg and the first and middle finger on the top.

Take care to keep the string tight. Hold the top high above your head, throw it from you with a bold swing, and you will find the top will spin well.

Peg in the Ring

The best game with peg-tops is "Peg in the Ring." A large ring, a yard in diameter, is marked, with a smaller one, a foot in diameter, within it.

A player begins the game by spinning his top in the smaller ring; the next "pegs" at it, trying to split it. If a top when it

stops spinning remains in either of the circles it must be placed "dead" in the inner one for the other players to peg at; if, however, it rolls clear, as it should do if well spun, the player spins it again. Every player spins again as soon as he can get his top, and is allowed to peg at every top, dead or spinning, within the inner ring.

When a player successfully splits a top he keeps the peg as a trophy.

Chip-Stone

This is another very good game with peg-tops. A small ring, a foot in diameter, is drawn upon the ground, into which each player puts a marble. The players spin their tops outside the circle, pick them up in their hands still spinning, and try, by slipping the tops out of their hands, or "chipping," to knock marbles out of the ring. Any marbles "chipped" out become the property of the player knocking them from the ring.

Whip Tops

The top is started by a twist of the hands, and kept going by whipping. A good deal of fun may be derived from this if several players start in a row, and race with their tops to a certain point, some distance off. Another game is for two players to start their tops from opposite points and try to whip them against each other; the player who is able to knock his opponent's top over with his own, and at the same time to keep the latter spinning, is the winner.

A Chinese Boys' Game

The Chinese and Japanese boys, thirteen years old and under, play a serpent game which is quite exciting. A dozen or more boys form in line, each fellow with his hands on the shoulders of the boy in front of him. One of the fellows is the "Wolf." The boy at the head of the line is the "head" of the serpent, and the last is the "tail." The Wolf stands near the head of the serpent until the signal is given. Then he tries

to catch the "tail" without touching any other part of the snake. The boys who form the body of the serpent protect the "tail" by wreathing about in all sorts of twists, to prevent the Wolf from catching the "tail." This must be done without breaking the line. When the "tail" is caught, the Wolf becomes the "head" and the "tail" becomes the Wolf. The last boy in line is the "tail." The game can be continued until every boy has been the Wolf.

Three Deep

In this game the players are arranged in groups of two. All but one of the couples form a big circle facing toward the center, each couple with one player behind the other. There should be good wide spaces between the couples. One of the two free players is chosen to chase the other. They run around outside the circle. If the one chased is tagged, he becomes the one to do the chasing. At any time the one who is being pursued may run into the circle and take his place in front of one of the standing couples. This makes that group "three deep" and the third, or last, player of the group must immediately leave it to be chased until he either is tagged or causes some one else to be chased by stopping in his turn in front of one of the couples. If the game is played long enough and with frequent changes, every one will have a chance to run.

It is not permitted to run across the circle, and the runner may only go into it at the point where he stops in front of a couple. Nor is it permissible for a third man to go directly to the couple immediately to the left or the right of the one he has left. He must run a bit at least. This game makes for alertness and speed in running, and is good fun.

Shadow Tag

One player is chosen to be "It." He tries to step on the shadow of another player. If he succeeds, he calls the name of the player, who then becomes "It."

To prevent his shadow from being stepped upon a player

when hard pressed may bend in various directions or even lie down.

Rabbit's Nest

All but two of the players form groups consisting of three or four in a circle with hands joined and with a player inside the circle. These groups are scattered over the playground. The circles are nests and the players inside the circles are rabbits. Of the two remaining players, one is a rabbit and the other the farmer's dog. The playground is an orchard and the rabbits have gnawed the bark on the trees till the farmer has decided to send his dog to catch them. At a signal, the dog starts in pursuit of the rabbit which has no nest. The rabbit thus pursued may, when he finds himself hard pressed, enter a "nest" (circle) and then the rabbit in that nest must leave it. This rabbit may in his turn enter a nest and displace a rabbit. When the dog catches a rabbit, the rabbit becomes the dog and the dog the rabbit.

In order that those forming the nests may also take part in the running, it may, for instance, be stipulated that when a rabbit has been caught, the rabbit in each nest shall change places with one of the players forming the nest.

Snatch the Bean Bag

The players are divided into two equal groups in the usual way. Two parallel lines are drawn on the ground about fifty feet apart. At a point half way between these lines a flat-topped stake is driven into the ground and on top of it a bean bag is placed.

Each group of players is lined up behind one of the parallel lines so that the first player in one group faces the first player in the other group with the bean bag on the stake between them. At a signal the first player in each group runs out and tries to get the bean bag and return with it to the goal line before being tagged by his opponent. A player who succeeds in doing this makes his opponent a prisoner. A player who is tagged after he secures the bean bag and before he reaches

the goal line becomes a prisoner of the other side. One or the other of the two opponents, then, must become a prisoner. In every case it is the object of both opponents to get the bean bag and return with it to the goal line without being tagged by the other player. Much cleverness may be used in trying to do this. Effort should be made to pit players against each other who are as nearly equal in ability as possible. To this end, the leader on one side may first range his players side by side in the order in which they are to play and then the leader on the other side should arrange his players to the best advantage in the order in which they are to play.

The game ends when all the players on both sides have played once. The game is won by the side which has the most prisoners.

Fox and Gander

A player is chosen to be the fox. Another player, the gander, heads a line of players, the geese, who stand behind him, each one with his hands on the shoulders or about the waist of the player immediately in front of him.

The fox shouts, "Geese, geese, gannio!"

The geese shout back, "Fox, fox, fannio!"

The fox then says, "How many geese have you to-day?"

The gander replies, "More than you can take away."

The fox then tries to tag the last goose in the line; the gander, with hands outspread, and the line of geese by bending the line hither and thither try to prevent it. When the goose at the end of the line is tagged (no other goose may be tagged) he becomes fox and the fox becomes gander.

Horse and Rider

Half the boys (the riders) sit on the shoulders of the other boys (the horses). The riders throw a basket ball from one to the other. Whenever the ball drops to the ground the riders must quickly dismount and run. As soon as a horse gets the ball he calls out "Halt!" The riders must then remain standing. The horse having the ball now throws it at a rider, who

may dodge about but may not move his feet. If a rider is hit by the ball, the horses become riders and the riders horses. If not, the game goes on without change as to horses and riders.

Last Couple Out

Players form in couples. The couples stand one behind the other and face in the same direction. An odd player (the catcher) stands ten feet or more ahead of the first couple and faces in the same direction as the couples. The catcher cries, "Last couple out!" and at this signal the couple farthest back run forward, the one at the right on the right-hand side and the one at the left on the left-hand side of the file of couples. It is their object to clasp hands in front of the catcher before the latter can tag either of them. The catcher may not look around after he gives the signal for the couple to run and he must wait till a player is abreast of him before giving chase.

If one member of the couple is tagged by the catcher, he joins the latter to form a couple and the one not tagged becomes the catcher. The new couple takes its place at the head of the line, which moves backward one space to make room for it. If the members of the last couple out succeed in joining hands before either one is tagged, they take up a position at the head of the line or are free (out of the game) as may beforehand be decided upon.

Advancing Statues

The object of this game is to teach children alertness and self-control.

The children stand on a line about thirty feet from the teacher or some older pupil who acts as leader. When the leader faces them they are to remain motionless as statues, but when his back is turned they may advance. By turning unexpectedly at irregular intervals the leader seeks to catch the children in motion. A child detected in motion must go back to the line and start over again. The child first crossing the line on which the teacher stands is the winner.

Variation.—The leader counts ten before turning. The counting may be fast or slow, regular or irregular.

All-up Relay

Behind a starting line drawn on the ground the players are arranged in two or more single files (one behind the other in each file), there being a like number of players in the different files. Directly in front of each file, and at a distance of from twenty to fifty feet from it, two circles are drawn, each three feet in diameter and with rims touching. In one side of each pair of circles three Indian clubs (or billets of wood of equal diameter and height and sawed off square at the ends) are placed on end.

At a given signal the foremost player in each file runs forward and with one hand lifts the clubs or billets, one at a time, and sets them down in the adjoining circle so that they stand erect and do not touch the circumference of the circle. This done he hastens back to his file, touches the outstretched hand of the next player (the file having moved forward so that the player to be touched off toes the starting line), and takes his place back of the line. The instant the second player has been touched off he runs forward and sets up the clubs or billets in the other circle. He then runs back and touches off the third player, and so each player in turn runs forward as he is touched off by the preceding player and moves the clubs from one circle to the other. That file wins whose last player first crosses the starting line on his return.

Variation.—A cap or other object is laid upon the ground about thirty feet in front of each file. The players, each in his turn, run around the object from one to three times, as agreed upon, then return and touch off the next runner.

Animal Blind Man's Buff

A circle of players is formed and they dance around a blindfolded player who has a cane in his hand. When he taps on the ground or floor or claps his hands three times, the players come to a stop. He then points to some player who must

take hold of the end of the cane. The blind man then asks him to make the noise of some animal, say a dog, cat, cow, or horse. The one making this noise should try to disguise his voice as much as possible. The blind man tries to guess who makes the noise, and if right they exchange places. In either case the circling about goes on as before.

Players may disguise their height by bending the knees, standing on tip toe, or in other ways.

A Garden Obstacle Race

A garden obstacle race for children is really amusing, and makes an excellent impromptu entertainment.

A sufficiently exciting course may be made with the help of the most ordinary accessories to be found in the house or garden in the space of half an hour, the course being laid out on the lawn, or any other wide space of turf, or in the corner of a field.

The difficulty of the various obstacles to be surmounted should vary, to a certain extent, according to the average age of the guests, though a small, lithe, active boy of seven or eight years will often beat competitors of ten or twelve years old.

Collect together a dozen long, iron meat skewers, a clothes-line, or skipping-rope, a bundle of white tape, an old traveling-rug, an empty barrel with both ends knocked out and all protruding nails carefully removed or hammered flat, so that there are no sharp points sticking out anywhere, a long single ladder, a double ladder, if there happens to be one in the garden, a couple of big flower-pots, a long, narrow, springy plank, two big wooden hoops, a small roller-towel, a couple of walking-sticks, and a strong, four-legged table, besides a piece of wide white tape to act as starting-point and winning-post.

Have these accessories piled in the middle of the chosen course, and arrange them into obstacles, laid out in a large circle or oblong, from five to ten yards apart, in the following way:

1. *Winding In and Out of a Double Ladder.* The double ladder is laid on its side and opened for a couple of feet at

the free end, and pegged down to the ground to prevent its overturning. Competitors must wind in and out between the rungs from one end to the other.

2. *Going Through the Tunnel.* The tunnel consists of a traveling-rug firmly pegged down at the four corners, underneath which the competitors have to crawl. (N.B.—A wide fold of a couple of feet at least must be made in the rug lengthways before pegging it down, in order to leave space for the children to crawl through. If it were pegged out flat, no one could get under it.)

3. *Climbing the Table.* The table is placed as an obstacle, over which each competitor must climb.

4. *The High Jump.* This consists of two garden chairs, placed four feet apart, with a clothes-line or long skipping-rope tied to the back of each and brought under the seats and across the intervening space to form the jump. The seats must face each other, as this prevents them from toppling over.

5. *Running the Ladder.* The narrow ladder is laid flat on the ground, and the competitors have to run along it without missing a rung or losing their balance.

6. *The Tape Tangle.* For this obstacle, which, if properly arranged, is one of the best of the set, the long, ring-topped, metal skewers must be stuck into the ground to stand six inches above it, and about thirty inches from one another, in two parallel straight lines a yard apart. A criss-cross of white tape is made by passing it across and across from ring to ring. Competitors have to pick their way from end to end of the entanglement without being tripped up.

7. *Getting Through the Double Hoops.* The hoops are passed one inside the other in such a way that they make a skeleton ball, and are first tied top and bottom with a piece of twine where they intersect each other, and then pegged down into the ground. Each competitor has to crawl in and out of the ball.

8. *Climbing the White Wall.* The white wall consists of the roller-towel stretched out to its longest extent, with the walking-sticks passed through either end of it to keep it upright. Each competitor must climb over this.

9. *Running the Tight-rope.* The two flower-pots are inverted at such a distance apart as to just support the ends of the springing plank. Each competitor must run along the plank from end to end, and it adds to the general excitement if one or two Japanese umbrellas are provided, and if each competitor is forced to stop, pick up an umbrella from beside the plank, and, opening it, run the plank with it held over his or her head like a true tight-rope walker.

10. *Crawling Through the Barrel.* The barrel is laid on its side, and each competitor must crawl through it before running on to breast the winning tape. This is more difficult than it sounds, because the barrel, not being pegged down in any way, is apt to roll round and round with a competitor inside it before he or she can succeed in getting through. For a big party, as this is the last obstacle, two or three barrels may be arranged in a row, and this adds greatly to the general excitement, for the competitor who first succeeds in successfully negotiating the barrel is practically certain of winning the race, and the sight of several barrels rolling about madly, with frenzied arms and legs waving from either end of them, provokes a very gale of merriment from the spectators.

A two-yard length of broad, white tape, held between a couple of "grown-ups," makes the starting-post and winning-post.

To start the obstacle race, when all the children have assembled, arrange them in a line, five yards behind the starting-point, and standing one behind the other according to ages, the youngest in front and the eldest at the back of the line.

The starting-rope is now raised, to make a low jump for the small child who has to start the race, and is raised an inch or two for each competitor until it has become quite a good jump for the biggest boys and girls to negotiate as a start.

The time-keeper now cries, "One, two, three—go!" and off dashes the smallest child of the party, who, being a nimble little person, in spite of her minute size, has wound in and out of the ladder and is well on toward the rug tunnel before No. 2, who is nearly a year older, gets his start. The time-keeper counts ten for each year of age, consulting a card upon which

names and ages have been noted, and then cries "Go!" until, in this way, all the competitors have been fairly started.

The course consists of two laps—that is to say, the entire circle of obstacles must be negotiated *twice;* and it is only after the second time of passing through the barrel that each competitor makes for the winning-tape, which is held taut and breast high to receive each runner in true professional style.

The obstacle race in full swing is a most exciting spectacle —two children are struggling underneath the rug tunnel, one is balanced on the ladder, which is not nearly so easy to run as it looks at first sight. The tight-rope is bouncing and threatening to throw the big boy and girl who are balanced at either end of it at any moment—luckily the drop is not a high one, a foot or so at most. A big boy lies in the middle of the tape tangle, laughing helplessly where he tripped up, and five or six competitors are scrambling over the table, one or two of whom slide over it to land upon their heads, while a line of several frenzied and shouting children are crouched down behind the barrel, which twists and wriggles as if possessed, while four arms and legs fitfully emerge from either end, denoting that the block has been caused by two very slim, six-year-old boys, who just managed to dash into one end of it together, and then got jammed and unable to move either way. A good pull from a "grown-up" finally releases them, and off they dart, none the worse, round the course for the second time.

How to Play Flags

Any number of players from three to six a side can take part, and the only accessories actually required are two large white pocket-handkerchiefs—to represent flags—and a dozen medium-sized stones or pebbles.

To begin the game, the players choose sides, and divide the lawn into two camps, separated by a boundary line.

Each party has a flag and six stones (or soldiers) to place upon it.

The flag is placed at the extreme back of the camp, at the part farthest away from the boundary line, and behind this

any prisoners captured during the game must stand until they are rescued.

The object of the game is for each of the players on either side to dart over the boundary line into the enemy's territory and make a dash for one of the stones, to be brought back in triumph.

A player holding a stone thus captured in her hand claims safe transit back to her own country. If caught *before* she has captured a stone, she is taken prisoner, and must stand behind the flag with hand outstretched to await a rescue.

The next player who succeeds in reaching the flag will touch her hand to rescue her, instead of stealing a stone, and hand in hand rescued and rescuer can cross the enemy's country in safety in order to return home.

The excitement of the game as one or other side succeeds in capturing two or three prisoners who, although on *parole* not to set foot over the back boundary line behind the flag, skip and dance behind it, waving their hands and imploring to be rescued, can be better imagined than described. If one or two "grown-ups" have consented to join in the fun, the effect of seeing their mother or a good-natured but too venturesome uncle imprisoned behind the enemy's flag leads the juvenile players to perform unheard-of feats of foolhardy valor in their efforts to reach and free them.

The defenders often succeed in capturing these would-be rescuers one after another, until the proud moment arrives when every single member of the enemy's forces is captured and ranged in a row among the prisoners, and nothing remains but to take leisurely all their stones and capture their flag before their eyes, before declaring victory.

In order to win a game of flags, however, it is not necessary to first capture the whole of the opposing forces. The only essential is that the winning side should have rescued any members of its side who may have been taken prisoners, and have captured all the enemy's stones, and, lastly, its flag, in order to give a victory, when the game can begin over again.

Crazy Croquet

"Crazy croquet," as its name implies, is a game which breaks every known canon of croquet law and horrifies the serious croquet enthusiast. It can be played upon a proper lawn, with the hoops and sticks set up in regulation fashion; but it can also be played just as well in quite a small garden, where the available turf is cut up with flower-beds, in which case the hoops are set up promiscuously wherever a convenient spot presents itself, while the sticks are set up to make variety about the course, which must be arranged in such a way that the players can go through the hoops and hit the sticks without having to cross a gravel path, which would much damage the paint on the balls.

For crazy croquet the ordinary croquet mallets, hoops, and sticks may be used, but for children it is better to use quite an inexpensive children's croquet set, with miniature mallets, hoops, and balls.

"Crazy" though the game may appear to the player of ordinary croquet, a definite set of rules has been laid down, which all players must follow:—

No. 1.—The ground must be so laid out that the course begins with a hoop, which each player must go through before proceeding elsewhere.

No. 2.—The order of playing is the same as that employed in ordinary croquet: blue, red, black, yellow.

No. 3.—Any number of players may take part in a match, but from four to eight players make the best game, each player playing for herself. No partners are allowed.

No. 4.—Each player starts from a spot two mallets length away from the first hoop, which must be gone through by each player before he or she can go on elsewhere about the ground.

No. 5.—Each player has one stroke only for each turn, except after having struck another ball. Going through a hoop or hitting a stick does not entitle the player to a second stroke.

No. 6.—No player may hit his or her ball until the previous player's ball has come to rest.

No. 7.—When a player has been through the first hoop she may proceed to any part of the ground during her next turn, hitting any stick or going through any hoop she pleases. Going through a hoop or hitting a stick scores one, and a hoop may be approached from either side; but it is forbidden for a player to go through the same hoop or hit the same stick in two successive turns.

No. 8.—A player may strike any other player's ball, and, having done so, appropriates her opponent's score—should it amount to fewer than ten—and is then entitled to take another stroke.

No. 9.—The object of the player with the highest score (under ten) is to avoid the neighborhood of other players' balls until she has succeeded in compiling a score of ten. She is then allowed to put this first ten aside, and set about securing a second ten, to be put aside in the same way, until the full score fixed upon before the commencement of the game—30, 40, or 50, according to the time on hand—is reached, when victory is declared.

The general excitement is, of course, intense when one player has succeeded in compiling a score of six or eight, and is being chased about the ground by the remaining players, and the progress of a crazy croquet match provides much interest and amusement for the onlookers.

WHEN YOUNG PEOPLE GET TOGETHER

GETTING UP A PARTY*

By WILLIAM BYRON FORBUSH

A PARTY, as everybody knows, consists of two things—play and ice cream. This being so, we are surprised to be told that "parties are becoming obsolete." Surely there is no easier or better way of expressing neighborhood fellowship among children than by a party.

Since every game-book consists almost entirely of descriptions of games for parties, most of which are generally well known, this page shall be given rather to a few statements as to the technique of a successful party.

Every party should have a play-master, a cheery dictator who is supreme from the beginning to the end, and who has nothing to do with the refreshments or the cloakroom or anything but play-leadership. It is a sorry kind of a party, noisy, ill-tempered, and uninteresting, where children are shut up in a room and told to play, with no adult supervision.

The one essential preparation for a good party is a schedule, in which quiet games, for rest, alternate with active ones. Allowing ten minutes for each game, a dozen will be plenty for an afternoon.

Choosing Games

In choosing games, avoid those which require much apparatus or preparation, because the children are eager to get to playing. Avoid games which involve writing, reading, or reciting, any activity which may not be "pulled off" quickly and with unanimity, or any which will make conspicuous either the exceptionally forward or the backward child. Avoid games in which knowledge of each other's names is essential, for

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some present will probably be strangers. Avoid games which encourage unmannerliness, rough handling, or the disposition of any youngster to be "fresh." It is possible to play the liveliest games courteously.

Choose games that are simple and easily explained. Do not be afraid of old games. Folks generally like to play games they know best. At the close of each game ask if they wish to play it over, and if they respond enthusiastically, do so. Be sure that each game is suitable for the number present. Blind Man's Buff, for instance, requires at least a dozen players to be enjoyable, but Tether Ball cannot be played by more than two at one time. Sometimes, at a large party, it is necessary to divide the players into two circles, but this is unsatisfactory, because chums get separated and those in one circle are quite apt to be sure that the other circle is having all the fun. In games where the one who is "it" must be quick-witted, be sure the child first chosen for that part is competent. If the leader is not sure, let her be "it" first herself.

The game chosen to begin the party should be one which can be played by a few, which does not require choosing up equal sides and which lends itself readily to the addition of more players as the late arrivals straggle in. Instead of an embarrassing sitting around on chairs, it is better to begin to play some jolly game as soon as half a dozen arrive. Then those who come afterward are drawn at once into an active, laughing company. Good games for starting a party are Buzz, Peanut Hunt, Racing to the Bell, Blind Bell, Horns, Fish Pond.

Among the active games those of hunting, chasing, and seeking are always popular. In the quiet games, guessing and imitating are well liked. All quiet and some active games are played in a circle, and if the room is large enough a circle of chairs should be placed in advance and kept for use as wanted. A piano adds to the pleasure and orderliness of a party, in the marching games, in changing from one game to another and to accompany the march to the refreshment room. Forfeits are always popular, but are not successful unless they

are thought up in advance, are performed rapidly and are paid by all. Anyone who is visibly embarrassed in paying a forfeit or in playing any game should, of course, be released at once.

Prizes generally stimulate unpleasant motives and jealousies among children. Favors for all are better. Elaborate decorations are unnecessary and are usually unnoticed.

Stunt Games

On such an occasion some young man may carelessly take from his pocket a small box of friction matches with his right hand, remove a match with the same hand, light it on the box with the same hand, blow it out and replace it in the box without using his left hand. Then the practiced operator may ask somebody else to try to do it, and the fun will begin.

Or a young lady may stick a hatpin into the floor and then hand three nuts to her neighbor, asking him to pitch them at the pin. The distance of the nuts from the pin will be carefully measured, and after several have tried, the one who succeeds in placing a nut nearest the pin will be the winner.

Again, a large-necked bottle is placed on the floor and each player is given five peanuts. The feat is to stand at arm's length from the bottle and, if possible, drop the five peanuts into it. Anyone will be lucky if he can succeed in putting in three of them.

Take five pennies or dimes in the palm of your right hand and manipulate the hand so as to get a penny on the end of each finger and the thumb; then, when all the ends are full, return them to the palm without dropping one.

Again, take five quarters and slip them between the fingers of one hand until they all lie on the back of the hand without using the other hand.

Somebody sits at the head of the room holding a large, deep dish heaped with peanuts. Each person, in turn, slips a hand, with the palm down, into the dish and scoops up as many nuts as possible on the back of the hand, the one holding the dish helping to add to the mass in every possible manner. The one who succeeds in walking across the room and back

and depositing the largest number of peanuts in another dish wins the prize.

The Persistent Penny

Hold a couple of pennies between the finger-tips and the thumb in such a way that the under side of the lower coin points to the ground. Release the lower penny, letting it fall into the other hand, held a foot or so below it. The penny will turn over, showing what was the under side before release. If the distance be increased to a couple of feet, a complete revolution is made—that is, the penny comes to rest with the original side up. Therefore, by regulating the distance, one can make either "head" or "tail" show, and this greatly puzzles people who do not notice the change of distance.

The Mysterious Knot

Tell the audience that you intend to take an end of a handkerchief in each hand, and tie a knot in the middle of it without letting go of the ends. This seems impossible, but it is really a very simple trick. All you have to do is to fold the arms so that one hand is under the other arm. Then pick up the ends of the handkerchief, the left hand grasping the right end, and the right hand the left. The arms are then straightened out, and, sure enough, there is a knot in the middle of the handkerchief all right.

N.B.—The handkerchief must be a large one.

The Bewitched Spoon

Lay a soup spoon on the table bowl upward, and try to lift it by putting your thumb at the end of the handle and your middle finger into the bowl. It *can* be raised in this way, and even carried about for some time, though the feat seems at first impossible. Slip the thumb down nearly to the joint to get a grip; but, of course, all the fingers except the middle one must be held well away and not allowed to touch the bowl.

The Looped Chains

A jailer who was instructed not on any account to let his prisoner go free, felt uncertain about the fastenings of the door and window of the cell. He therefore resolved to pass the night in the cell himself, and for extra security padlocked a chain on to his own wrists, first passing the chain *through* that which confined the prisoner's hands together. Nevertheless, when he woke in the morning the prisoner had disappeared, although he could not unlock his own chain, and that of the jailer had not been tampered with.

Let two members of the party try this experiment, with stout cords tied to their wrists representing the chains. If they cannot do it, take the place of one, and proceed as follows:

Pass the loop of your cord, without twisting it, under the cord which binds one of your jailer's wrists, from above; then slip it over his hand, and you will be free. You can make yourself a prisoner again by reversing the movements.

The Witches' Screen

For an evening party, put up an old sheet in a doorway. Four holes are torn in it, and through these holes the following articles are passed to those on the other side, who are blindfolded: a hot potato, a raw oyster, ice, a snake made of dough, a potato filled with toothpicks, and a rubber glove filled with air and the open end tied together and dipped into ice-water. The blindfolded ones are to guess what these articles are.

A Magazine Party

A Magazine Party is a splendid means of passing away an evening. The program may be varied, shortened or lengthened, according to time on hand. The names of the magazines may be acted or disguised in words, so as to give each member of the party an opportunity to exercise the faculty for guessing and reasoning. Prizes may be awarded to those guessing the most and least numbers.

In conducting a party of this kind, provide a pencil and sheet of paper on which are written two rows of figures corresponding in number with the number of magazines to be guessed. Give each member one of these papers and a pencil. Have someone read the phrase that is the disguise of the first magazine. Call that Number 1. Tell each member to write opposite the figure one the disguise and the name of the magazine guessed. Go through the list in this way, then announce the correct names in the order given, and ask each member to check those guessed correctly, and write the number guessed on the edge of the paper. The prizes can then be awarded according to the best and worst guesses made.

The following is a specimen list of magazines and the disguises in which they may be presented. The disguises may be varied:

DISGUISE	REAL NAME
100 Years	Century
Santa Claus	St. Nicholas
Ancient Minstrel	Harper's
Public Place in Rome	Forum
Early New England Settler	Puritan
One Who Sketches	Designer
Noted Fairy	Puck
Large Body of Water	Atlantic Monthly
Dispenser of Justice	Judge
Prospect	Outlook
Boys' Jackknife	Youth's Companion
Part of Rope	Strand
Ever on the Move	American Boy
The Dark Night Songster	Black Cat
The Reader	Bookman
All the People	Everybody's
The New John Alden's Wife	Modern Priscilla
Picnic	Outing
The Sentinel	Watchman
Everybody's Job	World's Work

One of the most successful parties I ever conducted was a "Fagot Party." Forty children and young people had assembled one winter day in a living room 15 x 25 feet. Very active games were impossible. Each person present was given a fagot or small piece of wood, to which was fastened a number. As each responded to the order of his number, he was ordered to throw his fagot upon the open fire and to sing a song, recite

a piece, tell a conundrum or suggest a game, to last as long as his fagot burned. The whole afternoon ran rapidly away with this varied and self-originated program.

Below are some schedules of games, arranged alternately for activity and quiet, which have, in my experience, made successful parties:

For a Party of Children 8 to 14

Hide the Thimble
Horns
I Say "Stoop"
Hen Roost
Trades
Did you Ever See a Lassie?
Poor Pussy
Menagerie
Change Seats (or Exchange)
Buzz
Kitty Cat
Still Pond

Another Party of Children 8 to 14

Shadow Tag
Find the Ring
Jacob and Rachel
Up Jenkins
London Bridge
Hen Roost
Animal Blind Man's Buff
Going to Jerusalem
Horns
Center Catch Ball
Buzz
Mulberry Bush

For a Party of Young People Over 14

Buzz
Parlor Field Meet
Beast, Bird, or Fish
Jacob and Rachel
Minister's Cat
Observation
Hottentot Tackle
Wink
Up Jenkins
Peanut Race
Still Pond
Music Box
Spooning
Change Seats (or Exchange)

THE BOY SCOUTS

By JOHN L. ALEXANDER

THE aim of the Boy Scouts is to promote the ability in boys to do things for themselves and others. The method is summed up in the term Scoutcraft, and is a combination of observation, deduction, and handiness, or the ability to do things. Scoutcraft includes instruction in first aid, life saving, tracking, signaling, cycling, nature study, seamanship, campcraft, woodcraft, chivalry, patriotism, and other subjects. This is accomplished in games and team play, and is pleasure, not work, for the boy. All that is needed is the out-of-doors, a group of boys, and a competent leader.

In all ages there have been scouts, the place of the scout being on the danger line of the army or at the outposts, protecting those of his company who confide in his care.

The army scout was the soldier who was chosen out of all the army to go out on the skirmish line.

The pioneer, who was out on the edge of the wilderness, guarding the men, women, and children in the stockade, was also a scout. Should he fall asleep, or lose control of his faculties, or fail on his watch, then the lives of the men, women, and children paid the forfeit, and the scout lost his honor.

But there have been other kinds of scouts besides war scouts and frontier scouts. They have been the men of all ages who have gone out on new and strange adventures, and through their work have benefited the people of the earth. Thus, Columbus discovered America, the Pilgrim Fathers founded New England, the early English settlers colonized Jamestown, and the Dutch built up New York. In the same way the hardy Scotch-Irish pushed west and made a new home for the American people beyond the Alleghanies and the Rockies.

These peace scouts had to be as well prepared as any war scouts. They had to know scoutcraft. They had to know how to live in the woods, and be able to find their way anywhere, without other chart or compass than the sun and stars, besides being able to interpret the meaning of the slightest signs of the forest and the foot tracks of animals and men.

They had to know how to live so as to keep healthy and strong, to face any danger that came their way, and to help one another. These scouts of old were accustomed to take chances with death and they did not hesitate to give up their lives in helping their comrades or country. In fact, they left everything behind them, comfort and peace, in order to push forward into the wilderness beyond. And much of this they did because they felt it to be their duty.

These little-known scouts could be multiplied indefinitely by going back into the past ages and reading the histories and stories of the knights of King Arthur, of the Crusaders, and of the great explorers and navigators of the world.

Wherever there have been heroes, there have been scouts, and to be a scout means to be prepared to do the right thing at the right moment, no matter what the consequences may be. The way for achievement in big things is the preparing of one's self for doing the big things—by going into training and doing the little things well.

To be a good scout one should know something about the woods and the animals that inhabit them, and how to care for one's self when camping.

The habits of animals can be studied by stalking them and watching them in their native haunts. The scout should never kill an animal or other living creature needlessly. There is more sport in stalking animals to photograph them, and in coming to know their habits, than in hunting to kill.

But woodcraft means more than this. It means not only the following of tracks and other signs, but it means to be able to read them. To tell how fast the animal which made the tracks was going; to tell whether he was frightened, suspicious, or otherwise.

Woodcraft also enables the scout to find his way, no matter

where he is. It teaches him the various kinds of wild fruit, roots, nuts, etc., which are good for food, or are the favorite food of animals.

By woodcraft a scout may learn a great number of things. He may be able to tell whether the tracks were made by an animal or by man, bicycle, automobile, or other vehicle.

By having his power of observation trained he can tell by very slight signs, such as the sudden flying of birds, that some one is moving very near him, though he may not be able to see the person.

Through woodcraft, then, a boy may train his eye, and be able to observe things that otherwise would pass unnoticed. In this way he may be able to save animals from pain, as a horse from an ill-fitting harness. He may also be able to see little things which may give him the clue to great things and so be able to prevent harm and crime.

Besides woodcraft one must know something of camp life. One of the chief characteristics of the scout is to be able to live in the open, know how to put up tents, build huts, throw up a lean-to for shelter, or make a dugout in the ground, how to build a fire, how to procure and cook food, how to bind logs together so as to construct bridges and rafts, and how to find his way by night as well as by day in a strange country.

Living in the open in this way, and making friends of the trees, the streams, the mountains, and the stars, gives a scout a great deal of confidence and makes him love the natural life around him.

To be able to tell the difference between the trees by their bark and leaves is a source of pleasure; to be able to make a bed out of rough timber, or weave a mattress or mat out of grass on which to sleep is a joy. And all of these things a good scout should know.

Then, too, a good scout must be chivalrous. That is, he should be as manly as the knights or pioneers of old. He should be unselfish. He should show courage. He must do his duty. He should show benevolence and thrift. He should be loyal to his country. He should be obedient to his parents, and show respect to those who are his superiors. He should

be very courteous to women. One of his obligations is to do a good turn every day to someone. He should be cheerful and seek self-improvement, and should make a career for himself.

All these things were characteristics of the old-time American scouts and of the King Arthur knights. Their honor was sacred. They were courteous and polite to women and children, especially to the aged, protected the weak, and helped others to live better. They taught themselves to be strong, so as to be able to protect their country against enemies. They kept themselves strong and healthy, so that they might be prepared to do all of these things at a moment's notice, and do them well.

So the boy scout of to-day must be chivalrous, manly, and gentlemanly.

When he gets up in the morning he may tie a knot in his necktie, and leave the necktie outside his vest until he has done a good turn. Another way to remind himself is to wear his scout badge reversed until he has done his good turn. The good turn may not be a very big thing—help an old lady across the street; remove a banana skin from the pavement so that people may not fall; remove from streets or roads broken glass, dangerous to automobile or bicycle tires; give water to a thirsty horse; or deeds similar to these.

The scout also ought to know how to save life. He ought to be able to make a stretcher; to throw a rope to a drowning person; to drag an unconscious person from a burning building, and to resuscitate a person overcome by gas fumes. He ought also to know the method of stopping runaway horses, and he should have the presence of mind and the skill to calm a panic and deal with street and other accidents.

This means also that a boy scout must always be in the pink of condition. A boy cannot do things like these unless he is healthy and strong. Therefore, he must be systematically taking exercise, playing games, running, and walking. It means that he must sleep enough hours to give him the necessary strength, and if possible to sleep very much in the open,

or at least with the windows of his bedroom open both summer and winter.

It means also that he should take a cold bath often, rubbing dry with a rough towel. He should breathe through the nose and not through the mouth. He should at all times train himself to endure hardships.

In addition to these the scout should be a lover of his country. He should know his country—how many states there are in it, what are its natural resources, scope, and boundaries. He ought to know something of its history, its early settlers, and of the great deeds that won his land, how they settled along the banks of the James River; how Philadelphia, New York, and other great cities were founded; how the Pilgrim Fathers established New England and laid the foundation for our national life; how the scouts of the Middle West saved all that great section of the country for the republic. He ought to know how Texas became part of the United States, and how our national heroes stretched out their hands, north and south, east and west, to make one great united country.

He ought to know the history of the important wars. He ought to know about our army and navy flags and the insignia of rank of our officers. He ought to know the kind of government he lives under, and what it means to live in a republic. He ought to know what is expected of him as a citizen of his state and nation, and what to do to help the people among whom he lives.

In short, to be a good scout is to be a well-developed, well-informed boy.

The easiest way to become a boy scout is to join a patrol that has already been started. This patrol may be in a Sunday School, Boys' Club, Young Men's Christian Association, Young Men's Hebrew Association, Young Men's Catholic Association, or any other organization to which you may belong. If there is no patrol near you, get some man interested enough to start one by giving him all the information.

THE KNIGHTS OF KING ARTHUR

By AGNES BARDEN DUSTIN

I HAD come, uninvited, into a hall strange and new. wanted to stay.

Light-footed pages were moving here and there, making all ready for some event.

"What event?" I questioned. Only the high-up clock ticked solemnly in answer. A helmeted figure, clad in armor, came through the guarded gate and laid some command on a willing page. I heard a message, in which "knights" and "conclave" figured, and the helmeted one went out.

I was awake; I was sure of that, and this was the twentieth century. I looked about the hall. At one end rose an elevated throne. A page that instant touched a button and mysterious lights shone through its red draperies, casting a ruddy glow over the steps, where, to my further amazement, I saw sitting a small jester in black and yellow, muttering to himself as if reciting a lesson. The throne was roofed with crossed spears, a sheathed sword leaned against it, on it were carved the words "Arthur Pendragon." Above a banner worked with some unknown device, framed "Castle Joyous Guard." From one and another of the shields on the wall I read emblazoned, "Knights of King Arthur."

I had heard and read much of the modern knights and their thousands of castles throughout the world. So this was one of them. I wanted to stay more than ever. Outside had risen a tumult, the sound of tramping feet, the clash of arms, shouts of "Joyous guard" and "Camelot" mingled.

"Camelot," I repeated. "Another castle! They have visitors, and so won't pay much attention to me."

A general rallying cry in unison shook the banners on the wall:

Hullo!
Hurray!
K. O.
K. A.

I ventured out of my corner for a nearer view of things. A chair of elaborate design, completely hidden beneath a white cloth, sat at the right hand of the throne. This was the "Siege Perilous," a page whispered to me, "in which only those who do wonderful deeds of bravery ever sit." Beside it, borne on a slender table, lay a massive book, called the "Book of Noble Deeds." I wondered how many of the castle members had been found worthy to have their names inscribed within, but dared not raise the cover.

Midway of the hall, before the throne, was the Knights' Round Table, covered with a heavy red cloth, with a white cross in the center. About it in a wide circle were the seats. These were numbered, and above each one was suspended, from a gilded spear, a banner, bearing the knightly name of the owner. Sir Bors, Sir Gareth, Sir Tristram, and two-score names, famous in song and story, I met here. Turning to the Jester, who was busily scribbling, I questioned humbly:

"Might just a mere person stay here a little while?"

He nodded abstractedly. "Know any jokes?" he muttered, but again came a ringing cheer, then the rallying cry of Camelot:

All rah, rah, rah, rah,
Who do you think we are?
Knights of the present day,
K. O. K. A.

A measured chant from the second castle echoed this, to the steady tramp of heavy feet in the outer court:

We are the knights,
Knight of the king,
Sworn to live pure,
Sworn to speak true,
To follow the king,
In whatever we do.

The clear call of a cornet sounded without. I looked toward the door to see a tall-robed figure raise a taller spear; the gates flew open, and, led by the seneschal and preceded by their bugler, came the procession.

I retreated to my corner, and regarded the long lines with quick interest.

First came two heralds, bearing the Joyous Guard banner and the American flag. Two by two marched the pages, wearing capes of blue, with the white cross of the Order, and carrying spears; sturdy Esquires, in long garments of red, their black shirts giving the appearance of armor, wore huge shields on their left arms. Close following were Knights in white robes, with swords at their sides, and members of the peerage. Seven Chamberlains, in knee tunics and helmets, preceded the grave Chancellors in their togas, black and red mantles, and high caps. In the place of honor at the rear, walked Merlin, the counselor, though not of "uncounted winters," like the old magician, and the King in his purple robe and gold crown.

Around the hall the Seneschal led the armed procession, escorting in a body the visiting castle of Camelot, in like order. Three times the hall was circled, the marching throng singing the song of the young knight:

> Comrades, hail the cross that leads us,
> Comrades, hail the Grail that beckons,
> Comrades, hail the war that waits us,
> Knights of holy chivalry.

At the foot of the hall they paused and marched toward the throne. Here the procession halted and formed two long lines, facing inward, and in silence Merlin and the King marched upward under an arch of crossed spears. King Arthur is on his throne. Pages, Esquires, and Knights salute, and at a signal from Excalibur, the King's sword, each of this goodly company, with knightly order, immediately seeks his own place in the hall.

The circle is formed. Sir Merlin, the Sentinel, and a Messenger, are seated at the Round Table; the Constable goes to

the far end of the hall; the Seneschal with his parchment roll, takes his station at the king's left hand.

"Sentinel, bar the gates."

I slip outside, with a lingering look backward at the picturesque Castle Hall and King Arthur laying his commands on a loyal and enthusiastic court. It made an Old-world, chivalric picture—the red glow from the throne shining out over the quaint Jester, touching the earnest faces of the young Knights, glinting here and there on sword-sheath, helmet, lance, and strange heraldic device, on drooping banner and courtly robe. The gates closed behind me, shutting out the picture, but a rousing chorus of knightly song swept through and followed me as I went:

Then lift the heart and raise the song
Of manly voices fresh and strong;
To knightly manhood pledged are we
In life, in love, in loyalty.

NOTE.—If you want to know more about this interesting Society, which has also a branch for girls, called the Queens of Avalon, write to the Knights of King Arthur, Lebanon, N. H.

THE WOODCRAFT LEAGUE

By ERNEST THOMPSON SETON

"FATHER doesn't understand me. He thinks I am a fool because I want to be in the woods and see all its fish and animals. I am just like Yan, I hate indoors. Would you advise me to run away from home?"

That is the sort of letter I get from time to time. The boy is craving the delights of outdoor life, the joys of Woodcraft. The father is thinking about the boy's future and cannot see how the overpowering instinct to run wild and the need for education are to be brought into harmony.

It has been my pleasant task many times to bring these two, and at the same time father and son, together.

My first letter always has insisted that the boy owes absolute obedience to his parents. Then I proceed to show that the outdoor life has always produced the best kind of man, both body and brain. I point to Washington, Lincoln, and a host of others to sustain this view. I am careful to make the letter one which will win the father when he sees it, and I make sure that he does see it.

I point out that most boys are born good; that all are possessed of overpowering instincts which sometimes lead them astray; but only when the teacher or guardian assumes that these natural impulses are for evil.

I assume that all human energy should be conserved. If it is going wrong, direct it; never, never crush such a precious thing as human energy. I do not know of any instinct that is deeper rooted or more productive of creative energy than the love of outdoor things; this is the sum of all woodcraft. "Something to do, something to think about, something to enjoy and remember in the woods." Woodcraft was the first science known to man; therefore, it is the most basic.

The boy was hankering for education. The father was

determined to educate the boy. But they had different ideas as to how it was to be brought about. It is the dream of the Woodcraft to show the way; it has already done so in many recorded cases.

The Natural Development of Man

In the very beginning, when the first man became man, Woodcraft was the one science that he knew and practiced. He lived in the woods and wilds, and had to win his living by his wits, his speed, and his strength; so that excellence in Woodcraft was his very hold on life, and continual striving to improve the quality of his science, ever improved the quality of his mind. Thus it was Woodcraft that first took the four-legged, hairy brute, set it up on its hind legs, and gave it a bigger brain.

A new epoch then was marked by a new habit—by one all-important accomplishment—man learned to throw stones. Missile weapons gave him a mighty advantage over the beasts. He could kill the too swift without catching them; he could slay the too strong without risking his own life.

Perfection in the new science was of ever-growing importance, and forced on the rough brute the unconscious fact that the more the front limbs were relieved of duty as legs the better they could throw stones. Because the precision of fine adjustment, that made accurate aim, was worth far more even than force. Thus, in time, the missile weapons gave man a new dominion and also made him a two-legged animal; while the perfecting and sensitizing of the hand and its reaction on the brain made for further development. Man must have had many kinds of missile weapons and used them long—yes, long and well, before the next great event took place: the advent of fire.

How did it come? There can be little doubt that it came by accident, and came many times by accident, before man learned to use it, and he learned to use it long, long before he learned to produce it. The Fire, the fierce mystery, changed all his life. Up to this time, when night came down, men, our

ancestors, had to climb the trees and sit shivering in the branches all night, looking down at the shiny-eyed, stronger brutes in the bushes below, only too ready to make a meal of them. Sometimes, of course, our people had caves into which they could retreat at night, and could block the entrance with stones; but, wherever they slept, it was a case of shiver with cold and fear until the coming of fire.

Then, for the first time, man could sit fearlessly on the ground when the black night came, and defy the shiny-eyed monsters, which, for some strange reason, were afraid of the blazing wonder and held away.

Thus, the fire became the giver and symbol of warmth, beacon, protection, peace. Now, for the first time, men sat in comfort and in light, while all the outside world was black, which meant that active life was ended. So they could converse and hear each others' experiences and learn the wisdom of the older men. And ask, "Why did we fail in the hunt to-day? How shall we work together for success to-morrow?" And there were chosen places, places of honor, for those strong ones who had not failed—for the heroes.

Fire as a Symbol

So the fire became a symbol of council, of brotherhood, of team play, of social relationship. There can be no moral doubt that this clan circle around the fire was the basis of human society. So the wonderful shining thing in the middle of it all became the symbol of it all.

Only by looking deep into ourselves and studying closely our ancestral reactions, can we now appreciate the magnitude, the awfulness, the mystery, the power, the pleasures of the fire. What wonder that it became to man the Great Mystery.

In those days, man could not yet command the fire, once it was secured, in the trail of the thunderbolt, maybe; so it had to be carefully guarded and kept alive; and if so be the guardian failed and the fire died out, this calamity meant, at least, a perilous journey to the next camp to secure and bring back the precious spark. What wonder that some wise one

was selected as guardian of the fire, and thus arose the office of the priest, the minister of the Great Mystery; and these things are not so far back but what we have abundance of legends recording such moving experience. To this day, the vow of the Cheyenne chief includes a promise to "keep the fire burning," and tales of the dark days, when the fire had died, are told with bated breath.

With a priesthood to exalt the wonder of the fire mystery, its importance grew in the thoughts of men: This was the one great mystery. It must have been long later that men realized the fire only did by night what the sun did on a larger scale by day; besides, the fire was in many camps, they could not all be the great mystery. Therefore, in time, the focused thought: the great mystery must be the *One* behind the fire and the sun. Thus men were led to think of the first cause.

Instincts

This is a brief outline of man's development; and the proofs of it lie partly in history, but chiefly in ourselves. At every point, in every department, we can discover them. Almost all our instincts date to those days. There can be no doubt that most of our superstition, our fear of the dark—of the unknown, is founded on our ancestral memory of the time when the night was full of deadly dangers, and when all about us in the darkness were strong brutes and dreadful forms, following, ready at any moment to pounce on us and make us their helpless prey.

When I see the children walking so as to avoid stepping on the cracks of the paving stones, when I see them religiously avoid letting a tree or post come between as they walk, when I see them walk the top of every low wall by their road, when I see them glorify physical strength above all things—when I see them fear the dark and cower over the fire, when I see them spit on new property to possess it, and a host of other strange things, I know that they are merely continuing habits which, meaningless now, were of vital import a hundred thousand years ago.

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MR. AND MRS. ERNEST THOMPSON SETON

In "Woodcraft" Costumes.

What, then, is the bearing of this on life and youth-to-day? Very real it is. If I were going to train a seal for a performance, I should not balance that seal on the top of a step-ladder. If I were going to train a billy goat, I should not put him in a tank—that is, I should place each in the surroundings that developed its peculiar powers, in which it is most at home; and thus I would get the best response out of each. That is my point. Because Woodcraft made man out of brute material in the beginning, it is the natural course to be followed in the development of the young. It utilizes the ready made energy of their instincts. It wins their interest from the beginning. The four well-marked stages should be followed—the physical, the all-round sound body; the mental, which was nursed in the form of hunter's cunning; the social, which began in loyalty to the gang and team play for successful hunting; and, last, the purely spiritual, which found its visible symbol in the fire.

These are the four departments of human development; and any educational plan that ignores any one of them is doomed to failure.

This is the whole doctrine of Woodcraft: aim at the four-square character development in masterful contact with the world about us, with as much outdoor life as possible; remembering that to-day, as in the beginning, Woodcraft was merely overcoming the daily obstacles of ordinary life.

The Practice of Woodcraft

In actual practice, when introducing the Woodcraft idea to a new group of young people, the first thing is to establish a council ring with a fire, or at least a symbol of the fire, in the middle. If the leader sits as one of this council ring with all in it, then all are friends, and quickly respond, when called on to do their part; whereas, if the other plan of platform and audience is used, it establishes two camps, more or less hostile.

In the council ring, the decorum of debate is enforced. It gives dignity to the proceedings, and is, in itself, high training.

The love of glory is the dominant feeling in a primitive soul; and, like all instincts, is consistently used in Woodcraft. The exercises in the council ring afford a chance to achieve glory, to win victories; that is, to be approved and applauded by those who look on.

The activities begin with purely physical things—as contests of strength or skill, one-legged fights, badger pulls, etc. Then follow tub-tilts and team play games. Soon confidence begotten of these makes it easy to introduce song, dance, recital. The imagination is played on by "movies"; that is, dumb-show acts and interpretative dances. Stories are given an important place. Honors are distributed, on evidence, for things done elsewhere. Patriotic songs or simple anthems addressed to the Great Spirit are used in closing.

The plan of man's development is followed in brief. Every basic instinct is used. If it be a dangerous instinct, it is guided, not crushed. As much as possible, the work is outdoors and deals with the beautiful things of nature so dear to every young soul. There is no lack of interest. The thousand activities classified in the manual will in some sort appeal to every human being.

This we maintain before the world: The first aim of education is to make, not an athlete or a scholar or a politician or a religionist, but *a man*. He must be developed in the fourfold way, physical, mental, social, spiritual; any one of these left out makes a poor citizen. Any educational plan that does not take them all is doomed to failure.

There can be no doubt that every school and college that would prosper and continue must modify its way to incorporate this simple, natural scheme.

This is a portrait of the Woodcraft boy who has entered our ranks and finished in the high degree.

He is physically strong and a trained athlete, dignified, courteous, self-controlled, happy in helping, equipped for emergencies, wise in the ways of the woods, in touch with the world of men and affairs; not specializing, but of such all-round development that he can quickly be made a specialist in any needy place, and filled with a religion that consists not of mere

observance, but a well-considered plan of life that makes him desired and helpful here to-day.

Is not this what any father wishes his boy to be? Is not this the highest pinnacle of education and the best guarantee of success in life? I have little difficulty in making both father and son think so. And there is a new joy in the Woodcraft mode, for it dispels the idea of two camps, teacher and taught, always more or less hostile; for in Woodcraft both leader and led go together and learn together, for it breeds the spirit of good fellowship as no other plan of learning can do. One father wrote me after such an experience, "It has been the means of getting close to my boy and building a companionship that never existed before."

NOTE.—If you want to know more about the Woodcraft League, write to it at 13 West 29th Street, New York City.

THE CAMP-FIRE GIRLS *

By IDA T. THURSTON

"WOHELO—wohelo—wo-he-lo!"

The clear, musical call, rising from the green tangle of the forest that fringed the bay, seemed to float lingeringly above the treetops and out over the wide stretch of gleaming water to a girl in a green canoe. She listened intently until the last faint echo died away, then began paddling rapidly toward the wooded slope.

"I'm going to find out what that means," said the girl to herself. "It sounded like an Indian call, but I'm sure those were not Indian voices."

On and on, steadily, swiftly, swept the green canoe, until, rounding a wooded point, it slipped suddenly into a beautiful little cove. Here there was a floating dock with a small fleet of canoes and rowboats surrounding it, and with steps leading up the slope. The girl smiled as she stepped lightly out on the dock and fastened her canoe to one of the rings.

"A girls' camp it surely is," she said to herself. "I'm going to get a glimpse of it, anyhow."

Running up the steps, she followed a well-trodden path through a pine grove. In a few minutes, through the trees, she caught the gleam of white tents and stopped to reconnoiter. A dozen or more tents were set irregularly around an open space; also there was a large frame building with canvas instead of boards on two sides, and adjoining this a small frame shack, evidently a kitchen; and girls were everywhere.

"Oh!" said the girl under her breath as she peered through the green branches. "I wonder if I dare venture——" She broke off abruptly, staring in surprise at a group approaching

* From "The Torch Bearers," by Ida T. Thurston, published by Fleming H. Revell Company, New York and Chicago.

her. Then she ran forward, crying out, "Why, Anne Wentworth—to think of finding you here!"

"To think of finding *you* here, Laura Haven! Where did you drop from!" cried the other. The two were holding each other's hands and looking into each other's faces with eyes full of glad surprise.

"I? I didn't drop—I climbed—up the steps from the landing," said Laura. "I was out on the bay in my canoe—we came up yesterday in the yacht. I heard that beautiful Indian call, and I just *had* to find out where it came from, and what it meant. I suspected a girls' camp, but of course I never dreamed of finding you here. Do tell me all about it. It is a camp, isn't it?"

"Yes, we are Camp Fire Girls," Anne Wentworth replied. She glanced behind her, but the others had disappeared. "They vanished for fear they might be in the way," she said. "I'm so glad you're here, Laura, for this is the night for our Council Fire. You can stay, can't you—I'm sure you would be interested."

"Stay—how long? It's after sunset now."

"Oh, stay all night with me, and all day to-morrow! You must stay to the Council Fire to-night, anyhow."

"I'd like to stay, but father won't know where I am." Laura's voice was full of regret.

"Why can't you go back and tell him? I'll go with you," Anne suggested.

"Will there be time before your Council Fire?"

"Yes, if we hurry—wait one minute." Anne called to the nearest girl, gave her a brief message, and turned again to her friend. "Come on, we've no time to lose, but I know how you can make a canoe fly," she said, and hand in hand the two went scurrying through the grove and down to the landing. Then, while the canoe swept swiftly over the water, Anne Wentworth answered the eager questions of her friend.

"It's a new organization—the Camp Fire Girls," she explained. "It is something like the Boy Scouts, only better suited for girls. It aims to help them to be healthy, useful, trustworthy, and happy. Health—work—love—as shown in

service—these are the ideals on which we try to build. We have three grades. First, a girl becomes a Wood Gatherer; then, after passing certain tests, a Fire Maker; and at last, a Torch Bearer."

"And which are you?" asked Laura.

"I'm a Guardian—that is, I am the head one of our City Camp Fires. Mrs. Royall is our Chief Guardian." She went on to explain about the work and play, the tests and rewards, ending with, "But you'll understand it all so much better after our Council Camp Fire to-night."

Laura nodded. "What kind of girls is it for—poor girls —working girls?" she asked.

"It is for any kind of girls—just girls, you know. Of course we can't admit any bad ones; nothing else matters. Dorothy Groves is one of my twelve, and I've two dear little high-school girls; all the rest are working girls. They can stay here at the camp only two weeks—some of them only ten days—the working girls, I mean; and it would make your heart ache to see how much those ten days mean to them, and how intensely they enjoy even the commonest pleasures of camping out."

"Who pays for them?" demanded Laura.

"They pay for themselves. It's no charity, and the charges are very low. They wouldn't come if it were charity."

The girls were now alongside the big white yacht with its shining brass, and Judge Haven was helping them up the steps.

Fifteen minutes later they were on their way back to the camp, but this time in a boat rowed by two of the crew. Mrs. Royall met them and made Laura cordially welcome.

"She's just the right one—a real camp mother," said Anne, as she led her friend over to a group gathered on the grass before one of the tents. "And these are my own girls," she added, introducing each by name.

"You've got to take me right in," Laura told them. "I can't help it if I am an odd number—I'm going to belong to this particular Camp Fire to-night."

"Of course we'll take you in! Aren't you Miss Anne's

friend?" said one, as she snuggled down on the grass beside Laura. "I' mso glad that you came down to our Council Fire night!"

Laura's eyes swept the group. "You must have good times here—you all look so happy," she answered.

They chatted of camp plans and happenings until the talk was interrupted by a clear musical call that floated softly out of the gathering dusk.

"How beautiful! What is it?" Laura asked, as all the girls started up.

"It's the bugle call to the Council," one explained, "and here comes Miss Anne."

Laura glanced curiously at her friend's dress. It was a long loose garment of dark brown, fringed at the bottom and the sleeves. A band of beadwork was fastened over her forehead, and she wore a long necklace of bright-colored beads.

"What it it—a robe of state?" inquired Laura.

"Yes, the ceremonial dress," Anne told her, "but you can't see in this light how pretty it is. Come on, we must join the procession."

"What has become of your girls?" asked Laura. "They were here a moment ago."

"They have gone to get their necklaces," replied Anne. "My girls are all Wood Gatherers as yet—we've not been organized long, you know; but they've been working hard for honors, and for every honor they are entitled to add a bead to their necklaces."

"Yours then must represent a great many honors."

"Yes," said Anne, "you see it incites the girls to work for honors when they see that their Guardians have worked and won them. The red beads show that the wearer has won health-honors by keeping free from colds, headaches, etc., for a number of months, or by sleeping out of doors, or by engaging in some sort of athletics—walking, swimming, rowing, or the like. The blue ones are for nature study; the black and gold, for business; and so on. Each bead has a meaning for the girl—it tells a story—and the more she wins, the finer her record, of course."

"What a splendid idea! how the girls will prize their necklaces by and by, and enjoy recalling the stories connected with them!"

"Yes," agreed Anne, "they will hand them down to their daughters as a new kind of heirloom, but——" with a laugh she added, "that's looking a long way ahead, isn't it?"

By this time the two were in the midst of a merry procession of girls from twelve to twenty years old; perhaps a third of them were wearing the ceremonial dress.

"What a gay company they are!" exclaimed Laura, as the procession—a few of the girls carrying lanterns—followed a winding path through the woods. "And Laura," said her friend, "if you could only see the difference a few days here makes in some girls who have had all work and no play—like some of mine! It is so delightful to see them grow merry and glad day by day. But here we are. This is our Council Chamber."

"I want as many eyes as a spider so that I can look every way at once!" Laura cried as the girls arranged themselves into a large circle. "What are those girls over there doing?"

"They are the Fire Makers. They were Wood Gatherers for over three months, and they have met the requirements for the second class. Some of the others are to be made Fire Makers to-night. Watch Mary Miles—the one rubbing two sticks. She will make fire without matches—or at least she will try."

The girl, with one knee on the ground, was rubbing one stick briskly back and forth in the groove of another. A little group beside her watched with eager interest; two of the girls were holding lanterns, and Mrs. Royall stood near her, watch in hand. The talk and laughter had ceased as the circle formed, and now in silence, all eyes were centered on the girl. Faster and faster her hands moved to the accompaniment of a whining, scraping sound that rose at intervals to a shrill squeak. At last a tiny puff of smoke arose, and the girl blew carefully until she had a glowing spark which she fed with tiny shreds of wood, until suddenly it blazed up brightly. Then springing lightly to her feet she stood erect, the flaming wood

Courtesy of The Camp Fire Girls.

A CAMP FIRE GIRL

At the start of the flame signal.

in her outstretched hand distinctly revealing her happy triumphant face against the dark background of the pines.

There was a ready chorus of applause as Mrs. Royall announced, "Thirty seconds within the time limit, Mary. Well done! Now light the Council Fire."

The girl stepped forward and touched her flaming brand to the wood that had been made ready by the other Fire Makers, and soon the flames began to blaze and crackle, filling the air with a spicy fragrance and sending a vivid glow across the circle of intent young faces. Laura caught her breath as she looked around the circle.

"What a picture!" she whispered. "It is lovely!"

At a signal from Mrs. Royall the girls now gathered closer about the fire and, led by Anne Wentworth, repeated in unison the beautiful Fire Ode.

In a few clear-cut sentences Mrs. Royall then spoke of the Camp Fire symbolism—of fire as the living, renewing, all-pervading element—of "Our brother, the fire, bright and pleasant, and very mighty and strong," as being the underlying spirit—the heart of this new order of the girls of America, just as the hearth-fire is the heart of the home. She spoke of the brown chevron with the crossed sticks, the symbol of the Wood Gatherer, of the blue and orange symbol of the Fire Maker, and of the complete insignia combining both of these with the touch of white representing smoke from the flame, worn by the Torch Bearer. She tried to make clear the beautiful meaning of each symbol.

When the roll-call was read, each girl, as she answered to her name, gave also the number of honors she had earned since the last meeting. There was a report of the last Council, and then each girl told of some good deed which she had seen or heard of since the last meeting—things ranging all the way from hunting for a lost glove to going for the doctor at midnight when a girl was taken suddenly ill in camp.

"There's a new member to be received to-night. Here she comes," said Anne, when the reports were all given.

Laura watched the new member as she stepped out of the circle and crossed over to the Chief Guardian. Mrs. Royall

then went through the ritual for taking in a new member, which closes with the lines:

"As fagots are brought from the forest
Firmly held by the sinews which bind them,
So cleave to these others, your sisters,
Whenever, wherever you find them.
Be strong as the fagots are sturdy;
Be pure in your deepest desire;
Be true to the truth that is in you,
And follow the law of the fire."

The girl returned to her place in the circle; and, at a sign from Anne Wentworth, four of her girls followed her as she moved forward and stood before Mrs. Royall. From a paper in her hand she read the names of the four girls, and declared that they had all met the tests for the second grade, that is, the Fire Makers.

The Chief Guardian turned to the four.

"What is your desire?" she asked, and together they repeated the lines of the ceremonial for this degree.

A few moments of silence followed, then the circle broke into laughing and chattering groups. Lanterns were lighted, and every spark of the Council Fire was carefully extinguished. Back through the woods the procession wound, laughing, talking, sometimes breaking into snatches of song, the lanterns throwing strange wavering patches of light into the dense darkness of the woods on either side.

NOTE.—If you want to know more about the Camp Fire Girls, write to them at 31 East 17th Street, New York.

MAKING OUR HOME BEAUTIFUL

MAKING THE HOME CHEERFUL

By MARGARET E. SANGSTER

I USED to know a home, very plain, very simply furnished, very strenuous in its endeavors, and lofty in its ideals, which for abounding cheerfulness surpassed the common abodes of men and women. Looking back I know that there was a struggle with poverty, that the wolf sometimes growled at the door, and that the one shadow on the lives of the heads of the house was that they had so little to give away. But the fund of anecdote there, the jests that were as much the family property as the silver spoons and the old clock in the hall, the friends who came and went, the hospitality that was spontaneous, and the fun that was never wanting, made that home perennially sweet for its inmates, and makes it perennially fragrant in memory.

The Little Things

The habit of being pleased with little things is worth cultivating by those who would be cheerful. If we wait for the greater gifts and scorn the smaller ones we shall often go through life with empty hands. A child's kiss, a child's good report on Friday afternoon, a bit of fire on the hearth on a chilly night, a letter from an old friend, a pleasure jaunt to park or seaside costing for the whole family less than a dollar, a new book, a picture bought with small daily savings—these are the items that add to the balance on the credit side of the home felicity. And when one has for years made it a rule to be glad and pleased when little delights have brightened the hours, one will realize that the capacity for a surprise or pleasure is greatly enlarged. The woman who found it a treat to go to Coney Island with the children for a picnic will be very

far from blasé if she ever goes to Mentone or Capri, or crosses the Continent and sits among the roses in a garden of enchantment at Santa Monica. Still beyond this, they who cultivate the talent for finding enjoyment in the daily little things, will be the stronger for battling with the sterner realities, and for bearing the greater sorrows, if ever they come.

The Joy of Light

Among tangible aids to cheerfulness in the household, and these should not be overlooked, light and warmth take precedence. Exercise frugality in other directions, but have a well-lighted living room, and, if practicable, a fire that one may poke. The gloomy, vault-like chill of a half-warmed, obscurely lighted home has driven many a boy and man to some hostelry where lamps and fire beckoned. No place in a home should be too ornamental and too costly in its equipment for the use of the family. A stately drawing-room may be the privilege of a palace, where there are suites of other pleasant apartments, but people of ordinary means should live all over their houses, and have no shut-up room, into which the boys and girls may not intrude. Books and periodicals add immensely to the cheer of a home, and to the broadening and brightening of growing youth. That house is always cheerful which is open to the voices of the period, which keeps a tally of new inventions and discoveries, and which is, to use a graphic phrase, up to date. The up-to-date house must own, not merely borrow from a library, plenty of books. Receptive to new ideas, cheerfulness comes to us as a matter of course. It is to the lonely, narrow, hopeless home that melancholy creeps a menace and a blight.

Avoid Ruts

They who most prize home cheerfulness will carefully avoid getting into a rut. The bondage of routine fetters those who never have variety, who, year in and year out, walk in the same track and drop seeds into the same furrow. If the mother, the pivot of the domestic machinery, shows symptoms of wearing

out, if she is not responsive as formerly, if she sits by herself, and the tears start at some fancied slight, the combined family should rally to her rescue. Twenty miles from home, or two hundred, the sovereign virtues of a change may restore her spirits and make her once more cheerful and brave. One uncheerful person in the house, one who is the slave of the low mood, will, without evil intention, upset the equanimity of the whole circle. Low spirits are malarious. Very subtly, very wofully, they undermine the family health. The contagion of despair is more noxious than the germ of yellow fever, and more to be dreaded. Make a strong fight, and be sure it will not be a losing one, with prayer and pains, against the ill dominion of the blues; in other words, against the malignity of the lower self. If the individual does this, the family will feel the tonic of a brave endeavor, and will help mightily and unitedly to drive the demoniac possession away.

Plenty of Song

One more tangible aid to good cheer at home is music. Banjo, mandolin, piano, plenty of song, and the household will move without friction, in mutual respect, and a common devotion to the common weal. A music-loving family is almost sure to have good times at home. While a home ought to reach out from itself to other homes, and to keep an open door for friends and guests, it should never be dependent for its cheer upon any influence from without. For its happy times, its daily enjoyments, and its pleasures that are processional with the year, it should be sufficient to itself. If cheerfulness in the home is to be a factor in the home's development, it must grow from the center, not be fastened on the circumference. The song must be in the soul before it is on the lip. Good times at home, among the home folk, a simple, uncostly style of living that involves no undue anxiety, a house not too fine for daily use, and plenty of sunshine and love, will fulfill the republican ideal, and upbuild our nation.

The World is Full of Joys

Somebody has written a little verse in praise of the fellow who is pleasant when "everything goes dead wrong." We deserve little credit for being cheerful at home when there is no provocation to be otherwise. That patient and manly type of character that is cheerful on the doleful day, and declines to note the dolefulness, is the one that I admire. A little while ago I stood looking down on the quiet face of a man who had lived ninety years. His daughter said, "The sunshine will not be so bright without him, father always saw the funny side of things." It was a great gift. To see the funny side! It is usually there, but some of us lack vision.

Here, in this mortal sphere, the pessimist tells his audience that we are in a vale of tears. It is not so. This is a world full of joys. The possibilities of happiness are inexhaustible. We carry with us provision for our journey, and though we pass this way but once, we may feed the hungry and give drink to the thirsty, and make every desert place blossom as the rose, if only we take each day as it comes, fill it with love to God and one another, and brim its measure with invincible cheerfulness.

The garden has many roses,
  But only one is there
Whose leaves as well as its petals
  Exhale a fragrance rare.
The hero is like the rose bloom,
  But, beside him, lowlier strives
The life with the everyday fragrance;
  Such are the sweetbriar lives.

Some of the garden's roses
  Die with the dying year,
But the sweetbriar keeps on growing
  And is here when the spring is here.
And some lives, thank God, perennial,
  Close to the house-door grow
And spring would be winter without them,
  For their hearts bring the spring, you know.

Some worship the hothouse roses;
  Gold buys their velvet blooms.
They nod on the bosom of Beauty,
  They scent the stateliest rooms.
But the sweetbriar goes not to market,
  In the crowd it asks no part,
Yet a man may love the sweetbriar
  And wear it on his heart.

MUSIC AS A HELP TO HOME HAPPINESS *

By MRS. GUSTAV L. BECKER

SERVICE is the keynote of the age in which we live—social service is what distinguishes it from the ages that led up to it.

How is your music to serve this age of service? All those hours of practice—so many lifetimes every week, if you count all the students in America alone—are they to pass like vapor, or to merge, every one of them, into the great spirit of the time?

Let us direct our attention to the girl who takes music lessons with no idea of the concert stage or of giving lessons, whose work is to be strictly non-professional, yet who spends hours and years in the study of music. What is she to do with the hours and years—play a few pieces for a few brief seasons and then—"give up her music"? It seems to me that she, like all of us, holds those hours and years in trust, to serve the present age.

To begin with, as she is part of a family, she might serve the family to which she belongs—say, her father. There are far too few girls who play for their fathers after dinner. You think he might be bored? Try and see; he likes to be proud of you, and, unless he is a pianist himself, he will be proud of all you can do on the piano. Even if he should go to sleep under it, that is good for him, too. You think that he might not appreciate the music you play, or that Grieg and Brahms would be "too much for him." Likely enough, but need you always play Grieg and Brahms? It won't hurt you to add to your repertoire some few pieces that will really please father—your teacher will be very glad to help you—and if you don't know what will please him, you have not

* Used by permission of *The Etude*.

taken enough interest in your father, and it is high time you found out. Don't be afraid that papa's taste in music will be too low; the chances are that men of his generation will be much more likely to prefer "Bonnie Doon" or "Mary of Argyle" to the cheap two-step and vapid popular song that lower present-day taste; and it is a great thing to be able to play "Bonnie Doon" or "Mary of Argyle" with a lovely flowing cantabile, so that it sings under your fingers. Think for one moment of the one who pays all the bills for all those practice hours. Even as a simple business proposition, don't you think the one who finances an enterprise has a right to receive a report once in a while?

If there should chance to be some one in the family who plays some other instrument and wants you to accompany, there is your chance. Perhaps if you remember about serving with your music, you will not dodge when your brother, let us say, wants you to play the piano part for his violin, although he may play rather badly. The beauty of this sort of work is that, like all forms of social service, it helps the giver more than the receiver. My grandfather used to play the flute, and when his dear daughter died he pressed me into service to play the piano with him. I was a little bit of a thing; notes were still hard to read; it took me a long time to bungle through the hymn he wanted—but I shall never forget the strange and beautiful sensation I experienced when I could play that with him. We were making music together, and I was at last free of the world of tone.

In a like manner he used to play the violin without notes, wandering from tune to tune at will, and I had to scramble after him on the piano, making chords to fit. Somehow that made me think and feel music—and all the time I thought I was only helping grandpa to have a good time.

And then you have friends. Some, perhaps, may be ill. If you have ever been ill for a long time, you know how, after the stress of pain is over and you can bear to hear sounds, you begin to think of the piano downstairs, and your fingers ache for the touch of smooth, cool ivory and your ears for the sound of music—familiar music. Even the organ

grinder has a value unknown in other hours, but it is not the organ grinder that you really want—it is your own old piano.

But life isn't all "pain and anguish"; there are the "hours of ease," and I cannot see how it would hurt your dignity or abase your art to minister to the common good in hours like these. Yes, I say it boldly, by playing for dancing. When you are all together and a happy impromptu dance is suggested, is there not always some one victim, more or less meek, who plays and plays, and never dances? I don't see why every girl who can play the piano at all should not take her turn at playing for the dance. There is a dear little story about Paderewski's paying an unexpected visit to the nursery of a celebrated magazine editor, and upon being urged to play that the children might waltz—urged by the children, that is—performing for them for half an hour, while the babies circled to probably the most expensive music in the world. He played Chopin waltzes, and when at the end he asked the children how they liked it, they replied with the frankness of their years that "it was lovely, but he didn't keep time quite as well as Fraulein." Naturally, for some one has said that the Chopin valses are intended for three-legged dancers. You see, it is the great who do not fear to be small; if it did not hurt Paderewski to play for dancing children, it won't hurt you; indeed, it will give you a sense of rhythm, if you haven't it already, and the feeling that you must go on and keep the beat, whatever happens, something that will do you a world of good when you come to ensemble playing. It is all in the spirit in which you do it—if when it comes your turn to play you think, "Now my music is called for; here is another chance to serve."

I am old-fashioned enough to regret the neglect of the "Sunday night sing," the hymns performed by the whole family. Nevertheless, there is still the Sunday school and the prayer meeting, and always a day coming when the regular pianist drops out and some one is needed. The minister's wife will be very glad if you have taken this sermon to heart, and are ready and glad to play without fuss or excuse.

But when your education is completed and you have mar-

SONG OF HOME AND REMINISCENCE.

ried, how many more chances for your music to "serve" there will be! I do think that of all reckless wastes the custom of "giving up music" at the altar is one of the most appalling. Marriage and the making of a beautiful home needs all your powers and all your accomplishments; are you going to shut out the most beautiful power and accomplishment, to which you devoted so many years? Most women do not really give up their music until they have little children—just the time in all their lives when they have need of it most. I do not mean for such an obvious reason as giving the children lessons—indeed, that is sometimes a doubtful advantage—but for the formation of their taste, for the atmosphere of beauty that will color all their lives and for the lovely influence that extends with it from mother to child. There is one young woman who used to play so well that every one loved to hear her; now she has two children; they never hear her at all; she has "given up her music." And the other day she said to me, almost in tears: "I can't think where 'Boy' gets his dreadful taste in music; he loves those awful street songs. I must take him to the Young People's Symphony." Ah, what an opportunity she had missed! Not long ago I went to the home of a college professor's wife, the mother of four children, to play with her, four hands, the symphonies of Beethoven. Two of her boys stayed in the room on purpose to gloat over how much better she played than I did. They were too polite to say so, but you could see it in their beaming eyes and in the kindness with which they commended me. One was already fourteen years old; wouldn't you be glad if at that perilous time when boys are only too apt to sheer off from home influences, your boy would be staying in to hear you play, and telling the neighbors afterward, "I tell you, My Mother, she can play just fine!"

It all rests with the spirit, after all; the spirit in which you hold and use your music. You can spend all these years in a sort of absorptive culture, or you can hold your music in trust for the common good. If you feel that, there will always be something coming your way to give you a chance to use it. Then your music will "serve the present age."

HOW TO ENTERTAIN A GUEST

By SUSAN ANNA BROWN

IT is not in the finest houses, or in the gayest places, that guests always enjoy themselves the most. You must have something better than elegant rooms, or all the sights and sounds of a big city, to make your home attractive and pleasant. It is a very low grade of hospitality which trusts in good dinners and fine houses alone. It must be a more subtle charm than either of these which will make your house a home to your friends.

All who have ever made visits themselves know this to be true. A cordial welcome, a readiness to oblige, a kind thoughtfulness of the pleasure of others instead of your own, are three golden rules for a hostess to remember. Let us look at some of the smaller details.

The Guest's Room

In the first place, have the guest's room in readiness beforehand, so as not to be constantly supplying deficiencies after she comes. Put a few interesting books on the table, and writing materials, if it be only a common pencil, pen, and ink-bottle, with a few sheets of paper.

Try to make the room show your guest that she was expected, and that her coming was looked forward to with pleasure.

A few flowers on the bureau, an easy-chair by the pleasantest window—these are some of the little touches which make the plainest room seem homelike.

If your visitors are strangers, or unaccustomed to traveling, try to meet them at the station, or to send some one for them. The sight of a familiar face among the crowd takes away that first homesick feeling which comes to young people as, tired and travel-worn, they step from the boat or cars into the sights

and sounds of a strange place. When your friend is once established in the guest chamber, remember that it becomes her castle, and is as much her own as if she was at home; so do not be running in and out too familiarly without an invitation. Let her feel that when you go there the order of things is reversed, and that then you are the guest and she is the hostess.

Do What Pleases the Guest

Let the pleasures which you choose for her entertainment be of a kind which you are sure she will enjoy. It is no kindness to insist on taking a nervous, timid girl on a fast drive, or out rowing if she is afraid of the water, under the impression that visitors must be taken somewhere, when all the time she is wishing she was on solid ground.

Do not invite people unaccustomed to walking to go on long tramps in the woods, and imagine that because it is easy and pleasant for you it must be so for them, nor take those who are longing for music to see pictures instead, while you are boring the picture-lovers, who may care nothing for music, with concerts. A little ingenuity and observation will give you enough knowledge of your friend's real taste to prevent you from making these mistakes; and, indeed, there will be little danger of your doing this if you keep in mind that the kindest thing you can do is to let guests enjoy themselves in their own way, instead of insisting that they shall enjoy themselves in yours. If they are fond of books, let them read in peace. I once heard a lady, who thinks herself hospitable, say to a young friend who was looking over a book which lay on the table, "If you want to read that book I will lend it to you to take home, but while you are here I want you to visit with me."

Do Not Be Ever Watchful

Let your friends alone, now and then, and do not make them feel that you are constantly watching over them. Some people, in trying to be polite, keep their guests in continual unrest. The moment one is comfortably seated, they insist that she shall get up and take a chair which they consider more

easy. If she sits in the center of the room, they are sure she cannot see, and if she happens to be by a window, they are afraid the light will hurt her eyes.

There is no place where this is more uncomfortable than at the table. An entire visit is sometimes spoiled for a sensitive guest by having her friends say, from a mistaken kindness, "I am sorry you do not like what we have. Cannot we get you something that you will like better?" or, "How does it happen that you have no appetite?" in this way calling the attention of the whole family to her, and making her feel that they consider her difficult to please. You can get something different for her the next time, if you choose; but do not let her feel that you are too carefully watching her plate.

Do not make visitors feel obliged to account to you for all their comings and goings, or tire them by constant and obvious efforts to entertain them. Unless they are very stupid people, they will prefer to entertain themselves for a part of the time, even although you make them feel that your time is at their disposal whenever they want it. I heard two friends talking, not long ago, of a place where they were both in the habit of visiting.

"How pleasant it is at Mrs. Chauncey's!" said one. "If you want her to go anywhere with you, she always makes you feel that it is just the place where she wishes to go herself."

"Yes," replied the other, "she never makes a fuss over you, but acts as if you did not cause an extra step to be taken, so that you don't worry all the time for fear you are making trouble; and if you want her advice about anything you are doing, she is always ready to stop her own work and show you just what you want to know, and makes you feel as if she was doing it for her own pleasure instead of yours—so much nicer than the way some people have of acting as though you were a constant interruption."

If any excursion is planned, and for any reason you find that your friend will be really happier to stay at home, do not insist upon her going, or allow the party to be broken up on her account. If she would really enjoy more to have you go without her, do not insist upon remaining with her. A friend

of mine suffered much by being obliged to go on a steamboat excursion, with a cinder in her eye, because she found that her friends would not do as she wished, and leave her quietly at home, and so, finding that the pleasure of a whole party would be broken up, she endured the pain of going with them, when she might have passed the afternoon in comparative comfort at home.

In the same way, some people will insist upon going about on business with a guest, who would much prefer to go alone.

Talk on Common Grounds

In regard to conversation, remember sweet George Herbert's rule:—

> "Entice all neatly to what they know best,
> For so thou dost thyself and him a pleasure."

Talk of the people and things which are most likely to interest those whom you wish to please. You would think it very rude to speak in a language which your visitors did not understand, and it is about the same thing to talk of matter in which they have no interest, and which they know nothing about. Every family has its sayings and jokes, which sound very funny to them, but unless they are explained they mean nothing to a stranger.

Do not ask many questions about your guest's personal affairs, since you are taking them at a great disadvantage when they are in your own house, as they will not like to refuse to answer. Be careful not to be too ready with advice about a visitor's dress. If she asks you what is most suitable to wear on any occasion, tell her frankly; but above all things do not say or do anything which shall indicate that you do think her clothes are not as pretty and fashionable as they ought to be. Sometimes a remark made with the kindest intentions will hurt a sensitive girl's feelings. Those of you who have read "The Diary of Mrs. Kitty Trevelyan" will remember how the little country cousin felt when she saw Evelyn smile at the dresses which had been made with so much care. I once heard a lady speaking of her girlhood, when she made her first visit

away from the farm where she had always lived. She said, as she looked back upon it, she always wondered at the kindness of the friends who received her cordially, and took her about with them cheerfully, when her dress was such as to make her laugh heartily at the mere recollection of it.

Ask Friends to Meet the Guest

Before your guest comes, tell your young friends of her expected visit, and ask them to come and see her, and if you invite company to meet her, do it as soon as convenient after she comes, that she may not feel that she is among strangers during the most of her visit. Western people coming east often think they do not receive a very cordial reception, because they meet so few people. A lady remarked to me quite recently that she did not know whether the friends she had been visiting were ashamed of her appearance, or of the appearance of their own neighbors. She concluded it must have been one or the other, as no pains had been taken to have them meet each other.

Each Day's Plan

Do not ask visitors what you shall do to entertain them. That is your business, and you should not be so indolent as to shift it from your own shoulders to theirs. There may be many things which they would enjoy that they will hardly venture to suggest. Try and have a pleasant plan for every day. It will require thought and care on your part, but it is worth while. I do not mean that you must be constantly taking them to some great entertainment. This is only possible to a few of you. In the most quiet country village some little visit or excursion may be easily found, if it is nothing more than a game of croquet with some pleasant girls, or an interesting story read aloud. Do not make the mistake of thinking that because things are old and dull to you, they are so to every one else. To the city girl, who goes weary and worn-out from the dust and heat of brick walls and pavements, the pleasant stroll in the woods, which is too familiar to please you, may be a fresh delight. So, to the one who has passed all her life among

green fields, the sights and sounds of a city may be a great pleasure, even though it may not seem possible to those who are tired of them.

It is surprising how many things there are to see, in any locality, if one will only take the trouble to find them; and the hope of making a visit pleasant to a friend is a good incentive to help one in the search.

If you cannot give your young visitor any elaborate and expensive pleasures, do not be discouraged. The sight of a brilliant sunset from some neighboring hill; a walk down Broadway; the inside of a great factory, where the throbbing looms are full of interest to stranger eyes—if you have no more wonderful sights than these to show, these are enough.

> "Who does the best his circumstance allows,
> Does well, acts nobly. Angels can no more."

Do not think it necessary to insist upon riding with your friends, if there is not room enough for you without crowding the others. I knew a lady who turned to her sister, who was visiting her, when but one seat in the carriage was left, and said: "Shall you stay at home, or I?" The guest replied that she was willing to give up, if necessary; whereupon the hostess handed her the baby and drove off, although she knew that her sister had particular reasons for wishing to go with the rest. This is almost too bad to tell of, even though it is true; but it exactly illustrates how selfishness in trifles may grow upon one unconsciously, until it becomes a controlling power. This fault has been rightly called "the taproot of all other sins," and is the greatest difficulty we have to overcome in acquiring habits of uniform courtesy and consideration for others.

Do not urge your guests to extend their visits, after they have clearly explained to you that the time has come for them to go, and that it is inconvenient for them to stay longer. Let the subject drop, merely letting them know that you are sorry to part with them. Do not convey the impression that you think you can judge better than they can of their own affairs, by constantly teasing them to stay, and saying that you are sure they could do so if they pleased.

HOME PETS

PETS are interesting, but they are lots of trouble for boys and girls who have no stick-at-ness. They have to have homes, and have to be fed, and have to be cared for in other ways every day. You can feed them to-day, but you must not forget them to-morrow.

Pets are different from dolls and roller-skates and velocipedes. They have in them some of that same thing which makes you different from a doll. This thing is called "life." If pets were allowed to live like their wild relations, they would care for themselves. So when we keep them as pets we are responsible for their care and their lives. Before you adopt any pets ask yourself if you are determined to be faithful to them.

THE CARE OF SMALL AQUARIUMS*

By RAYMOND C. OSBURN

SMALL aquariums as objects of interest and decoration in the house have become so common that their presence no longer attracts special comment, though the custom of keeping them is of comparatively recent origin. Goldfishes have been bred by the Chinese and other oriental peoples for several centuries, but chiefly in small out-door pools in the gardens.

The facts that animals require oxygen in respiration and that green plants give off oxygen in excess were discovered and published as early as 1778, but lovers of aquatic life were slow to apply this knowledge.

*From "The Care of Home Aquaria," by Raymond C. Osburn, New York Aquarium Nature Series; used by permission of the New York Zoological Society.

PETS

The idea is still prevalent, born of the old days of fish globes and persisting through ignorance, like many other exploded notions, that the aquarium requires a vast amount of time and fussing, and especially that the more frequently the water is changed the better it will be for the animal life. Nothing could be farther from the truth, for when a balance is secured the less changing of anything the better it will be, for fear of disturbing the nice adjustment which Nature has set up and *the water should not be changed at all.* Yet anyone maintaining a balanced aquarium will agree that the question first and most frequently asked by the interested visitor is, "How often do you have to change the water?"

The balance of plant and animal life means complete and continual ventilation. Not only is oxygen supplied in sufficient quantities by the plants, but the carbon dioxide given off by the animals in respiration is consumed by the plants in the process of starch making. The adjustment is Nature's own, and all animals are adapted to it. Such an arrangement is a pond in miniature and may be used in the scientific study of aquatic life of various kinds. In the majority of cases, to be sure, only goldfishes are kept, in addition to a few tadpoles or snails and plants. According to the interests of the aquarist, however, this may be varied indefinitely. Many other attractive exotic fishes of striking colors, form, and habits may be readily secured from dealers, or the collector may take up the study of local native fishes, the natural history of which will be found no less interesting than that of the exotic species.

Aquatic insects afford a most interesting and almost infinitely varied field for study, and their habits, metamorphoses, etc., may be most readily investigated by this means. Again, if the aquarist is interested in aquatic botany, he will find here excellent opportunities and means for studying many water plants. Marine life is even more varied than that of the fresh-water, and endless opportunities are afforded to those who live within reach of the sea. The microscopist will also find a constantly changing and ever interesting field of research in the minute life of the aquarium.

The Meaning of Balance

The factors which govern life in the balanced aquarium are the same as those which obtain elsewhere in nature, with the important difference that certain of them are under control. In fact we may consider the aquarium as a miniature pond in which the conditions of food, temperature, and aëration are under the control of the operator. In the natural pond the variations of temperature alone are sufficient to produce important cycles in the balance and in the life of the organisms.

To secure and maintain a balance in the indoor aquarium is the most important problem which confronts the amateur aquarist. Temperature, which is such an important factor in the natural pond, can easily be controlled indoors within the limits of variation which are likely to affect seriously the inhabitants of the aquarium. Similarly the light factor usually offers but little difficulty, and food can easily be added in the necessary quantities.

The problem of aëration is more difficult. In the natural pond, with its large surface ruffled by the breeze, this takes care of itself, since a sufficient amount of oxygen can be absorbed from the air to supply all the animals that can find food within its waters; but in the narrow limits of the aquarium, with its restricted surface, comparatively greater depth and the absence of any agitation of the water, the absorption of oxygen at the surface does not take place with sufficient rapidity to sustain much animal life.

To supplement the surface absorption of oxygen, it is necessary to grow plants in the aquarium. It is a well-known fact that in manufacturing their own food from simple substances plants give off oxygen as a waste product. This process is accomplished by the green matter of the plant, a special kind of protoplasm known as chlorophyll. In the submerged plants of the aquarium the oxygen passes off directly by absorption into the water. The fishes are thus supplied with oxygen given off by the plants as waste substance.

Having absorbed the oxygen into the blood by means of

the gills, the fishes combine it with the carbon of the food to obtain energy, and, in the process of respiration, give off to the water quantities of carbon dioxide, or carbonic-acid gas, as a waste substance. This gas, composed of carbon and oxygen, is absorbed by the plants and the carbon used in the process of starch making, while the oxygen is returned to the water again as a waste substance. Thus the animals and the plants of the aquarium are mutually benefited, each supplying something that is required in the life processes of the other.

Plants, however, are able to manufacture starch, and consequently absorb carbon dioxide and release oxygen, only when they are exposed to sunlight. It follows then that on dark days the plants have less capacity for aëration than on bright days, and that they yield more oxygen in sunny windows than in dark corners. Moreover they can make starch and consume carbon dioxide and yield oxygen only during the daytime. Further than this, they consume a small amount of oxygen in their own respiration both day and night, so that at times when they are not engaged in starch-making they tend to consume a part of the oxygen of the aquarium, although in a night they can use only a small portion of that thrown off during the day. If the water of the standing aquarium is supplied with an excess of oxygen during the day, a considerable amount of the oxygen will remain in solution in the water and aid in proper aëration throughout the night.

It is evident then that an aquarium well stocked with plants will support a larger quantity of animal life during the day and in bright weather than it will at night or on dark days. The animal life of the standing aquarium must therefore be regulated to meet the poorest rather than the best conditions of oxygen production by the plant life.

Temperature also affects the rate of starch-making and consequently of oxygen elimination, as the protoplasm of the plant is more active in a higher than a lower temperature. However, the fishes are also less active in colder water and consume less oxygen, so that these factors balance each other

and temperature does not especially affect the aëration of the well-balanced aquarium.

The Aquarium Tank

Undoubtedly the best kind of a receptacle for the beginner is the oblong, straight-sided aquarium with metal frame, glass sides, and slate or soap-stone bottom. The medium sizes holding from eight to ten gallons, up to twenty gallons, will be the best for the beginner. The smaller sizes are more difficult to balance and the larger ones are more expensive. For aquaria holding ten gallons and upward, the only type that can be used to advantage is that with metal frame.

When well set up such a tank will last for years without leaking, and is easily reset, or can often be readily mended by running a little asphaltum, red lead, or an aquarium cement in the joints.

The rectangular, straight-sided, all-glass jars, holding up to eight or ten gallons, are excellent; better in some respects than those with metal frames, for they are not likely to spring a leak. The glass jars, however, are more likely to crack and so prove an extra expense, but in the hands of the experienced aquarist they are perhaps the most satisfactory kind for sizes under five gallons. Care should be taken to see that such jars rest firmly and evenly upon their bases, and that they are not subject to sudden changes of temperature. It is well to place an asbestos mat, or a pad composed of a few layers of blotting paper, under the jar to act as a shock absorber and to distribute the weight more evenly.

The cylindrical jar with straight vertical sides is satisfactory to maintain, but the inmates appear somewhat distorted through the curved sides. For smaller aquaria the ordinary battery jar is as good as anything, except for the distortion, and has the advantage of being cheap. Very beautiful and well-balanced aquaria can often be made with the two-quart size, but these are suitable only for very small animals and few of them.

On no account should the ordinary globe be used. This is

the unanimous opinion of all experienced aquarists. Globes are often purchased by the inexperienced because of their cheapness, but they give the specimens a very badly distorted appearance, and, what is much worse, the constricted top affords but small surface area for exchange of gases with the air. Furthermore, the constriction of the top makes it almost impossible to clean the jar properly without emptying it, and this naturally disturbs the balance. The fact that a goldfish will live in a small globe, with or without a small floating branch of a water plant, is no excuse for keeping it in any but the most comfortable surroundings. Fishes in such globes —and how often we see them!—are compelled to go often to the surface and suck in bubbles of air to obtain enough oxygen to avoid asphyxiation. The slight additional cost in securing the proper sort of a tank will be repaid many times in the satisfaction with which it may be managed.

To prevent the fish from jumping out of the tank, a cover of wire screen may be provided. As a rule, there is little danger of this unless the tank is filled close to the top, but some kinds of active fishes are much given to leaping out of the water.

Temperature

For native animals in general the degrees of temperature is of comparatively small importance, provided that the water is not allowed to get too warm, as it will tend to do in summer if the direct rays of the sun are permitted to reach it for any length of time. Native fishes, as well as goldfishes and carp, will endure the colder temperatures so long as the water is not allowed to freeze, though the nearer the freezing point it approaches the more sluggish become their movements and the less food they will consume. The most satisfactory temperature is perhaps between the degrees of 50 and 70 Fahrenheit. It should be prevented from rising higher than 80 degrees or from falling below 40, though there is much less danger from the lower temperatures than from the higher. Some exotic fishes from the tropics require a warm temperature, and die when the water falls below 60. Young turtles

and alligators become torpid and refuse to eat if the temperature goes down much below 70, and should always be kept at a hot-house temperature to make the best growth.

It is very important for all animals that the temperature should not vary suddenly, since in their natural environment they are not subjected to such rapid changes, and hence are not adapted to them. Fishes, especially the long-tailed varieties of goldfishes, may have the tissues of the fins injured by exposure to sudden changes in temperature, rendering them liable to the disease known as "tail-rot." Aquariums should, therefore, be kept out of cold draught in the winter time and water should be added only when it is at the same temperature as that of the aquarium.

For tropical fishes which require higher water temperature the year round, 75 to 80 degrees or more, various devices have been invented. Several of these are quite satisfactory, even with small tanks. When specially constructed tanks or other apparatus are required, it will be best to consult a dealer in aquarium supplies in regard to the matter.

It is possible to heat a tank by means of electric light bulbs placed near the tank, and a little careful experimentation with the aid of the thermometer will indicate how close the bulb should be placed. But the best appliances involve means of circulating the water so as to maintain nearly the same temperature in all parts of the aquarium.

Planting the Aquarium

This is an important proceeding, as upon the successful establishment of the plant growth depends the aëration of the standing aquarium, and consequently the health of the animals. Many kinds of aquatic plants, both wild and cultivated, will grow readily in the narrow limits of the aquarium.

Fine gravel or coarse sand, or a mixture of these, should first be placed in the bottom of the tank to the depth of one or two inches, depending upon the depth of the aquarium. For the best results the sand should not be evenly distributed over the bottom, but should slope toward the center, side, or

end of the small tank, or have two or three depressions if the tank is larger. These not only add diversity to the appearance, but the fecal matter of the fishes, surplus food, and other wastes will collect in the depressions and can be more readily siphoned off.

The plants can be anchored by packing their roots in the sand or gravel, and, if necessary, large pebbles can be placed about the bases of the plants until they become firmly rooted, or the lower end of the stem may be weighted by wrapping with a small piece of soft lead just above the roots. Some aquarists insist that a layer of soil should first be placed under the gravel, but with completely aquatic plants this is quite unnecessary, while the soil is often a source of danger to the animal life through the decomposition of its organic ingredients.

If the aquarium is to support its full quota of animal life, the plants must be thickly placed. In fact, there can hardly be too much vegetation so long as the fishes have sufficient room to swim about. The plants tend to mass at the top of the aquarium, leaving free space below for the fishes.

To obtain the best results, the aquarium should be planted at least a few days before the animals are introduced. This allows the plants a better opportunity for taking hold of the sand, and it also permits them to thoroughly aërate the water in preparation for the animal life.

In order to prevent the possible introduction of parasites into the aquarium along with the plants, it is well to sterilize the latter before placing them in the tank. This can be done by immersing the plants for ten or fifteen minutes in a solution of creolin—two teaspoonfuls to the gallon of water. The plants should be well rinsed in water before they are placed in the aquarium. Phenol sodique solution—a tablespoonful to a quart of water—is also highly recommended. The plants should be allowed to remain in this solution for several hours and should, of course, be thoroughly rinsed after removal from the antiseptic bath.

The plants available for aquarium purposes are entirely too numerous to mention here. There are many native species,

some of which can be secured in nearly every pond and stream. They are generally annuals and do not live indefinitely, and the most satisfactory ones are those handled by the dealers, since these are cultivated especially for the purpose. These for the most part have been introduced from the tropics, where they flourish perennially.

Stocking the Aquarium

The beginner should start as simply as possible with only the commoner and hardier fishes, and wait until he has proved successful with these before attempting to handle rare or expensive stock. Carps and the ordinary goldfishes known as "commons" are undoubtedly the best for the beginner who is within easy reach of a dealer. The highly bred, fancy varieties of goldfishes are less hardy.

Almost any of the native fishes may be easily kept and will prove interesting and attractive. Catfishes are perhaps the most hardy, but the various suckers and many of the minnows, as well as young sunfishes, basses, etc., which can be collected with the aid of a small dip net, can be kept readily. The local species should be studied much more commonly than they are at present. Why so many people are satisfied to keep ordinary goldfishes when there is at hand an abundance of attractive native fishes of more lively habits and graceful form, is only to be explained by the fact that the former give so little trouble and can be bought of a dealer instead of collected at a brook.

Overstocking is the most serious error into which the beginner is likely to fall. In his enthusiasm for the fishes and his love for their attractive colors and movements, he places more specimens in his tank than can be readily provided with oxygen. Often, when they are not all affected in a short time, the result may be that they are gradually enervated until the loss of some of them establishes a proper balance of the animal and vegetable life. Until the management of the aquarium is thoroughly mastered, the rule should be to keep well under the limit of animal life.

There are, of course, many sorts of animals besides fishes that are adapted to aquarium life. The tadpoles, larvæ of frogs

and toads, are easily collected in any pond, or some of them may be purchased from dealers. In addition to their interesting habits, they are useful as scavengers, but unless they are large it will not do to introduce them into the aquarium with carnivorous fishes. In early spring the eggs may be collected and the young reared. The eggs of the frogs are laid in gelatinous masses, those of the toad in long strings.

Young turtles are interesting, but the most of them are better adapted to moist terraria than to the ordinary aquarium, as they need to have some way of climbing out of the water. The soft-shelled or fresh-water leather turtle is more aquatic than other species, and does not climb out often, but must have loose sand in which it occasionally buries itself.

Young alligators are frequently brought from Florida, but it should be made a punishable offense to do so, for sooner or later they die unless special care is taken to provide them with heat and sunlight.

The temperature of the ordinary living room in winter is too low for young alligators, as they require 80 to 85 degrees for their best development, and should not be allowed to drop below 75 degrees. Below this temperature they become sluggish and chilled and refuse to eat.

The pond and river species of crayfishes are well suited to the small aquarium. Those from the mountain streams and cold springs are harder to keep on account of the difficulty of maintaining a sufficiently low temperature during the warm months. They should not be kept with fish smaller than themselves, for they sometimes make too good use of their large pincers. They should be provided with some sort of a retreat in the form of rockwork or stones under which they can hide part of the time on bright days, as they are more or less nocturnal in habit. Some species will climb readily among the water weeds.

Animals that Will Live Well Together

In general it may be said that all herbivorous fishes can be kept together safely, and carnivorous species should be about the same size when kept in the same tank, though even

then it may become necessary to separate some of the more pugnacious specimens which are inclined to "bully" the others.

Goldfishes, carps, roach, golden ide, and suckers live amicably together, and tadpoles and snails may be kept safely with them.

The fresh-water minnows, such as chubs, shiners, dace, etc., catfishes, killiefishes, the various sunfishes and snails and large tadpoles will live together, though the fishes should be nearly the same size. Sticklebacks, paradise-fish and chanchitos are better kept by themselves, and the black basses and pickerels, unless smaller than the other forms, should also be kept separate. With these fishes it is better to keep only snails, as even large tadpoles may lose their tails by the attacks of the fishes.

The three species of local salt-water killiefishes live well together, and tautog, scup, cunner, toadfish, sculpin, etc., if about the same size, can be placed in the same tank. Sea anemones, crabs, and molluscs too large to be swallowed may be kept with them.

Feeding

It is a common but very mistaken notion that an animal should have food at hand at all times to keep it in good condition. It is well known that various forms of domestic animals, as well as the wild species confined in zoological gardens, make the best growth and keep in the most satisfactory condition when supplied only with what food they will clean up at one feeding. This applies with equal force to the inhabitants of the aquarium, but besides *there is a real and grave danger of contaminating the water by supplying more food than will be readily consumed.*

It is a well known fact that some aquarium animals will live for a long time without feeding, especially when kept at lower temperatures, but to maintain them in this condition results eventually in death by starvation, and is the worst form of cruelty to which they can be subjected.

The amount of food a fish requires depends on the temperature. When this is above 60 degrees they may be fed once

a day, but if the temperature is lower than 60 degrees, once in two or three days is sufficient. *Any food not consumed within a few minutes should be removed at once.*

In the selection of food one must naturally be governed by the needs of his animals—some species are partly or entirely herbivorous while others are carnivorous. Practically all of our native fishes are carnivorous, and thrive best upon a meat diet of some sort, while the goldfishes and carp are largely vegetarian. Prepared fish foods of varying composition may be obtained from the dealer in aquarium supplies, and he may be consulted as to that best adapted to a particular species of fish. The granular foods are in general better than the ordinary wafers which tend to go to pieces too readily and cloud and contaminate the water. In the case of carnivorous fishes, the prepared dry food may be supplemented occasionally by the addition of mealworms, earthworms, or fresh beef cut into small pieces, according to the size of the fish. Special care should be taken, however, that such animal food is removed if not eaten, as it decays much more readily than vegetable matter and causes greater danger of pollution.

To prevent the dry prepared food from becoming scattered over the surface of the aquarium it is advisable to make use of a floating glass ring which can be secured from a dealer. This not only gives the surface of the aquarium a neater appearance after feeding, but prevents the escape of smaller particles to contaminate the water. Care in the matter of feeding is of the utmost importance in preserving the balance of the aquarium and keeping the animals in good condition. It must be remembered that the usual fault is that of overfeeding, and the conditions should be studied carefully.

Tadpoles will usually find sufficient food in the débris left after the fishes have taken what they wish, and in the minute plant life of the aquarium, which they assist in keeping under control. Sometimes, however, more tadpoles are introduced into the aquarium than can obtain food in this manner, especially if the aquarium is not sufficiently lighted to encourage the growth of the minute plants, and the tadpoles grow thin from lack of food. There are several ways of meeting this

problem: (1) The tank may be placed in better light to encourage plant growth; (2) a larger supply of vegetable food may be introduced so that the tadpoles may have sufficient after the more active fishes have taken their share. In this case any surplus not consumed should be removed after a few hours; (3) the tadpoles may be removed to another receptacle occasionally and fed separately. However, a careful study of the conditions of the aquarium should make this latter method unnecessary.

Although tadpoles are vegetarian in their diet, the young frogs and toads after their metamorphosis are strictly carnivorous, and are adapted to a flesh diet only. They may be fed on insects, earthworms, mealworms, grubs, or pieces of fresh meat cut to a suitable size. Just at the time of change when the horny jaws of the tadpoles are being shed to allow the development of the teeth, they will take no food. This period of change extends from a few days to several weeks, according to the species and the temperature of the water.

Crayfishes and crabs are naturally scavengers and will eat almost anything. They prefer a meat diet, however, and if deprived of this they are very likely to turn cannibal and eat each other.

Cleaning the Aquarium

It must be clearly borne in mind that cleanliness is absolutely necessary to the welfare of the inhabitants of the aquarium. In an aquarium which is properly set up contamination can arise only by bacterial decay of organic substances allowed to remain in the water. There are three general sources of such organic matter: first, fecal matter from the animals, relatively unimportant because the deposits are small in amount and regular in occurrence; second, decaying vegetable matter from dead portions of the plants, also relatively unimportant since in the well-balanced aquarium there is little tendency for the death of the plant tissues; and third, decay of excess food matter, the usual source of pollution.

If care is taken in feeding—and a little study and experience in this matter is the only safe guide—no appreciable

amount of food need be left to decay. If, for any reason, the food is not all consumed, or if there is any accumulation of other matter, it may be readily removed by means of a long pipette, or a rubber tube used as a siphon. For the small aquarium a pipette with an inside diameter of one-quarter to three-eighths of an inch, and fitted with a large rubber bulb, is most convenient. In using the tube without the bulb, place the thumb over the upper end of the tube while introducing it, then withdraw the thumb when the tube is immediately over the substance to be removed. The substance will rush up the tube, after which the thumb is replaced while the tube is withdrawn.

For larger aquaria the pipette is rather tedious and the siphon is recommended. In either case the waste should be strained through a cloth net and the water should be returned to the tank rather than add fresh water to replace it.

The less changing of the water the better, for fear of introducing some new factor to interfere with the adjustment already established. It will occasionally be necessary to add water to replace that which escapes by evaporation. This should be done a little at a time and care should be taken to have the temperature the same as that of the water in the tank.

For the purpose of removing any deposits on the glass of the aquarium, a swab can be made out of a stick with a bit of cheesecloth wrapped about the end. The cloth may be removed each time it is used, which should not be more often than is necessary to keep the glass reasonably clean, or if it is used again it should be carefully cleaned and sterilized each time in hot water. The swab will serve not only to remove ordinary dirt, but also the green scum of the minute plant life which in strong light will soon cover the glass. These minute plants do no harm—in fact they are as beneficial in yielding oxygen as are the larger ones—and they are a natural part of the balanced life of the aquarium. However, one keeps an aquarium to enjoy the view of its miniature water world, and if the green scum interferes with the view it may be removed without great detriment to the adjustment. The scum grows

thickest on the side nearest the light, and it may be allowed to develop on that side as it will serve to screen the strong light somewhat from the animals.

CANARIES *

By ALEXANDER WETMORE

AMONG the birds kept for household pets none is so common or so well known as the canary. So simple are its requirements in the way of food and care that it needs little attention, and because of its pleasing songs and interesting habits it is a universal favorite. Readily adaptable to cage life, canaries display little of the fear shown by wild birds in captivity, and the ease with which they may be induced to nest and rear young adds to their popularity.

History

The actual origin of the canary as a cage bird is as obscure as is the early history of other domesticated animals. It seems probable that captive canaries were first secured from the Canary Islands, a group with which they have long been popularly associated. There are in the Old World, however, two closely allied forms from which the domesticated canary may have come. One of these, the bird now recognized as the "wild canary" is found in the Canary Islands (with the exception of the islands of Fuerteventura and Lanzarote), Madeira, and the Azores. The other form, the serin finch, ranges through southern Europe and northern Africa, extending eastward into Palestine and Asia Minor. In a wild state these two forms are very similar in color and to a novice are hardly distinguishable.

If, as is supposed, the original supply of canaries came from the Canary Islands, it may be considered doubtful that

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the stock thus secured has furnished the ancestors of all our canaries. The slight differences in color between the serin finch and the canary would probably have passed unnoticed by early bird lovers. With bird-catching a widespread practice in middle and southern Europe, the serin would often be made captive and be accepted without question as a canary. In this way serins and wild canaries may have been interbred until all distinguishable differences were lost.

The original canary, whether serin or true wild canary, in its native haunt was much different in color from its modern pure-bred descendant. The back of the wild bird is, in general, gray tinged with olive-green, especially on the rump, with dark shaft streaks on the feathers. Underneath it is yellowish, streaked on sides and flanks with dusky. Wild canaries from the Canary Islands, the Azores, and Madeira differ from the continental serins in being slightly grayer with less of yellowish green in the plumage above. In addition, the rump is duller yellow and the bill is distinctly larger. All of the wild birds have the feet and legs (tarsi) horn brown, the upper half of the bill dark brown or horn color, and the lower half paler.*

Both of the wild varieties inhabit vineyards, thickets, and more open country where bordered by trees. At times during fall and winter great flocks are found together. The birds feed upon various seeds and occasionally eat figs or other small fruits in season. In a wild state they nest early in spring and again later, rearing two broods. The nest, made of plant stems and grasses and lined with hair and plant downs, is placed in bushes or low trees. The eggs are clear green in color, spotted and clouded with deep wine red and reddish brown. From three to five eggs are deposited.

Cages

When choosing cages in which to keep canaries, the primary consideration should be the comfort of the birds and this

* See the charts on pages 495 and 499 of Volume V of the Treasury.

should not be sacrificed to any desire for ornate appearance. There are several types on the market, any of which may serve. So far as shape is concerned, the square cage is best, as it affords more room for exercise than one with rounded corners.

For a single bird, the cage should be at least 9½ inches long, 6½ inches wide, and 9 inches high. A larger size is much better. The ordinary cages secured from dealers in this country are made of wire and are open on all sides. Each is fitted with receptacles for food and water, usually at opposite ends. A fine-mesh wire screen may be secured from the dealer and fastened around the lower half of the cage to prevent the scattering of seeds and seed hulls. A common substitute for this is a simple muslin bag, held in place by a drawstring fastening tightly about the middle of the cage. In a cage of ordinary size three perches are sufficient. One should be placed at either end at a distance that will allow easy access to the food and water receptacles, and the third elevated above the middle of the cage at its center. A bird confined in small quarters is dependent for exercise on hopping about from perch to perch, and this arrangement will give the maximum freedom of movement. In larger cages four perches may be advisable. These should not be placed so that they interfere with the free movement of the bird, and for reasons of cleanliness one perch should not be directly above another. In small wire cages, if the swing perch usually found suspended in the center is removed, the bird will have more room, and in hopping back and forth will not be continually striking head or wings. In larger cages this perch may remain. Perches should be large enough for the toes of the bird to grasp them readily and encircle them for three-fourths of their circumference. If they are too small they cramp the foot and cause trouble. They should be elliptical in shape, with the flattened portion above. If perches furnished with the cage do not meet these requirements, others may be made from soft wood without much trouble.

Cages in which canaries are to breed must be large and roomy in comparison with those intended for single occu-

pants. An English authority gives the standard size for breeding cages as 22 inches long, 12 inches wide, and 16 inches high. Several types of open breeding cages made of wire may be obtained, or a box with a wire front may be made.

Care of Cages

Though canaries, when acclimated, can endure a great degree of cold without discomfort, they are very susceptible to sudden changes in temperature, and cold drafts soon prove fatal. This should be borne in mind in choosing a place for the cage. A place along the wall at some distance from a window is better for the bird, yet cages are usually suspended before windows. This may be permitted if the window is kept closed and the joints are tight. It may be necessary to line the edges of the window frame and the junction of the upper and lower halves of the window with weather stripping to prevent drafts. The room must remain at a fairly even temperature day and night. For this reason it is best to avoid keeping birds in small kitchens, as the fluctuations in heat are perhaps more marked there than in any other part of the house. Exposure to damp air is also likely to be fatal, another reason for avoiding the steam-laden air of small kitchens. Direct exposure to a strong draft of cold air must always be avoided. A cage may be placed on a small shelf along the wall or suspended from a bracket attached to the wall or window casing. Brackets are inexpensive and are convenient for use when it is impracticable to fasten hooks in the ceiling.

Wherever placed, the cage must be kept scrupulously clean, if the canary is to remain in good health and free from vermin. Seed supplies must be replenished and water renewed each day. The receptacles for these necessaries should be cleaned and washed carefully at short intervals. Cages that have removable bases should have the tray in the bottom covered with several thicknesses of paper. A better plan is to use the heavy coarse-grade sandpaper, known as gravel paper, that may be secured from dealers in cage-bird supplies. This should be renewed whenever the cage is cleaned, and in addition the pan

should be washed in hot water from time to time. Lime on the perches may be removed by means of a scraper made of a bit of tin fastened to a wire or tacked at right angles to a stick small enough to pass easily between the wires of the cage. Cages with bottom attached should be provided with a sand tray that slides in and out through a slot in the front. This serves to catch droppings, seed hulls, and other waste, and it may be easily pulled out, cleaned, and refilled with fresh sand.

Food

The food requirements of canaries are very simple. The prime requisite is a supply of canary seed, to which is added a small quantity of rape seed and a little hemp. Persons having only a few birds usually buy this seed ready mixed from dealers. The seed should be clean, well matured, and not old. If canaries do not seem to thrive, it is well to examine the seed supply and crack open a few of the seeds to make certain that empty husks alone are not being fed. Too much hemp seed should be avoided, as it is very fattening.

In addition to this staple diet, lettuce, chickweed, or a bit of apple should be placed between the wires of the cage frequently. Bread that has been moistened in scalded milk, given cold, is also beneficial at times. If supplies of moist food are not kept strictly fresh and clean, bacterial diseases may result. In feeding moist foods, special dishes with holders that slip in through the wires of the cage are recommended. These are sometimes known as food holders or slides. Soft foods must not be made too wet. In the case of bread, enough liquid to soften the food, but not to run or to render it a paste, is sufficient. Perhaps once a week egg food may be given. This is prepared by mincing an entire hard-boiled egg and adding to it an equal quantity of bread or unsalted cracker crumbs.

Care should be taken to use this egg food only when fresh. Cuttle bone should always be available to the canary, and at times it is well to give prepared foods that may be secured from dealers.

The usual seed supply should always be present, no matter

what other food is given. Attempt should be made to regulate the supply of egg food or other soft food so that all is eaten without waste. The actual quantity will vary with individual birds. Meal worms occasionally are good for birds that are not thriving. A craving for animal food may be satisfied by bits of raw steak. It is not well to continue feeding raw meat, as it will cause a foul odor about the cage. For delicate birds, rape seed, soaked in water over night and carefully drained until dry, is beneficial.

Bathing

Under normal conditions most birds probably bathe daily, and canaries in captivity should be allowed the same opportunity. In open wire cages in common use for singing birds the base is removed and the cage placed over a small dish containing water. In open-front cages in which the bottom is not detachable, small bath cages which fasten at the open door are used. These are only a few inches wide, but serve to hold a dish for water. Many birds are notional in bathing, and at times ignore the offered bath. Usually the small acts of cleaning the cage and renewing the seed and water will excite in them a desire for bathing, and often when a bath is not provided the bird will do its best to perform its ablutions in the small supply of water in the drinking cup. When individual birds obstinately refuse to enter the water, gentle spraying will usually induce them to bathe.

Birds brought into strange quarters usually refuse to bathe for the first few days. When water is offered, they either ignore it or, sitting on a perch, go through the motions of bathing and drying, fluttering wings and tail with a great whirring of feathers. The bath should be offered whenever the cage is cleaned, and if left alone the birds will act normally after a few days.

Small china dishes that are not too deep make good bathing pans. When a bird becomes accustomed to one dish it will usually refuse to bathe in another of different shape or color. In winter the water should be warmed until tepid. Even in

warm weather too cold water is not advisable. If the room, ordinarily warm, becomes cold temporarily, birds should not be allowed to bathe. With the plumage wet and bedraggled, there is increased susceptibility to cold drafts. During molt the bath should be given not more than twice each week.

Molt

Canaries renew their covering of feathers once each year. In adults this molt occurs late in summer, and the first sign of it is the presence of a wing or tail feather on the bottom of the cage. These feathers are shed in pairs, one from either wing or from either side of the tail, dropped at approximately the same time. Never in ordinary circumstances does the canary have the wing and tail entirely devoid of large feathers. This provision is of no particular significance in a cage bird, but enables wild birds to maintain their powers of flight. The bodily covering, too, is renewed piecemeal, so that except about the head there is normally no extensive area wholly devoid of feathers at any time. Some birds drop a few of the body feathers all through the year.

Old birds weak in physical vigor often fail to renew their entire feather covering, and ordinarily there is no remedy for it. A supply of nutritious, easily assimilated food, and careful protection during the next molt may result in improvement. Usually this incomplete molt is a sign of extreme age or breakdown, and the bird does not live long. In healthy birds the entire molt requires about two months.

Birds usually need no special care during molt. Though they are in an abnormal bodily state at this time, healthy individuals will come through the period in good condition. Canaries are somewhat dull and stupid when molting, and should be disturbed as little as possible. Bathing may be permitted once or twice each week, but if birds do not wish to bathe they should not be sprayed with water, as this may cause fainting. The molt follows its normal course best in rather damp weather. A great change in temperature or a sudden chill may check its progress, and occasionally cause serious

trouble. If a bird shows signs of distress, it should be placed at once in a warm, protected place. Twenty drops of brandy, five of sweet spirits of niter, and a few shreds of saffron added to the drinking water, are beneficial. It is well to add egg food or moistened bread to the ordinary fare once or twice each week during molt. For ailing birds, a very slight quantity of sulphur may be added to the egg food, or a weak saffron tea given instead of pure drinking water. A few linseeds in the seed supply give a gloss and sheen to the new feathers not otherwise obtainable.

Vermin

Canaries serve as hosts for two forms of external parasites. The larger of these, a bird louse, known usually as the gray louse, is an insect with a slender, elongated body and a large head armed with strong jaws. This pest feeds upon the feather structure of the bird's outer covering, and though it does not suck the blood of its host, its sharp claws irritate the skin and cause discomfort to the bird. The eggs of the gray louse are attached to the feathers by a gum and are not easily removed. The young insects resemble the adults, and in a few weeks after hatching are fully grown. They are best combated by blowing insect powder (pyrethrum) into the plumage of the affected bird with a small bellows or blower. This treatment should be repeated two or three times at intervals of a week to insure that any young bird-lice hatching in the meantime will be killed.

The other parasite of canaries is a small mite, a minute spiderlike creature that when fully grown is barely visible to the unaided eye. Its natural color is whitish, but nearly always it is filled with blood sucked from the body of the unfortunate bird harboring it, so that it appears bright red. These mites are nocturnal and, except in cases of severe infestation, are seldom found upon the body of their host during the day. They are often found in the slits at the ends of the perches or in the round piece of metal forming the support at the top of the ordinary wire cage. In wooden cages they hide

in cracks, nail holes, or crevices, and their presence is betrayed upon close examination by minute white spottings. If unnoticed, they multiply rapidly and sap the strength of the bird by sucking its blood. When their presence is suspected, remove the bird temporarily and either clean the cage thoroughly with a solution of one ounce of commercial carbolic acid in a gallon of water, applied with a small brush, taking care to reach all crevices, or immerse the cage in boiling water, keeping it covered for several minutes. In addition, insect powder may be used as for the gray louse.

Where facilities for frequent bathing are offered and the cage is kept clean, there is usually little trouble with either mites or bird-lice. When a bird is sick and neglects its customary bathing, cleaning, and preening, it is surprising to see how rapidly these pests multiply. With care, however, they may be completely eradicated, though fresh outbreaks are liable to occur when new birds are brought in.

Care of Feet and Bill

As a canary grows old it will be noticed that its claws get long and catch on the perches and wires as it hops about the cage. In a state of nature the activities of the bird as it moves about on the ground or among twigs and limbs keep the claws properly worn down. Confined in a cage, the canary is less active; and while the rate of growth of the claws remains the same, they are subject to much less abrasion. It is necessary, therefore, to trim them with a pair of sharp scissors every few months. It is important to watch the condition of the claws carefully, as by catching they may cause a broken leg. In each claw a slender blood vessel extends well down toward the tip. This may be seen on close examination through the transparent sheath of the claw. In trimming, cut well beyond this canal, and take special care not to break the leg while handling the bird.

In cage birds the horny covering of the bill, as well as the claws, sometimes becomes distorted through growth without

sufficient wear. The tips of the mandibles may be pared down with a sharp knife, but care must be taken not to cut deep enough to reach the quick.

DOGS

FEED your dog regularly, but do not overfeed him. A light breakfast is best, such as a dog biscuit, soaked overnight in a little broth or water, with porridge for a change. Dogs should be fed only twice a day. For dinner, about five o'clock in the afternoon, let it be a good plate of meat and vegetables, with a little gravy, if possible. Always give your dog a good-sized pan of fresh water, so that he can take a drink whenever he is thirsty.

Bones should be given about three times a week. Any bone at any time, and with or without meat upon it, will amuse a dog, for a bone is a dog's toothpick. Do not give small bones, as of chickens or fish, as they are likely to stick in his throat.

The best indication as to whether the feeding is proper or not is the dog's condition. He should be neither lean nor fat, but sleek. Too much meat and lack of cleanliness will give rise to the "doggy" smell.

If a dog has a kennel out of doors, let it be large and roomy, with a good supply of clean straw, and place it in a sheltered corner. If you live near a stream, let him have a swim as often as possible. Dogs, like boys and girls, need plenty of exercise and fresh air and plenty of romps, to keep them happy. At least once a week give your pet's coat a good rubbing with a fairly stiff brush. A bath may be given indoors, with similar precautions as to drying and getting chilled that you would take in the case of a child. If your dog is going to sleep in the house, let him sleep in the hall or the kitchen, on a mat, but out of the draft.

A dog is a natural flea-trap. Let him pick them up, then clean him, and you have relieved the whole neighborhood.

Dogs, with a little patience, may be soon taught to carry sticks, baskets, papers, etc., and to do many funny tricks. Kindness is the key to success in their education.

Dogs, like children, to be taught thoroughly, should be well trained from their babyhood—and the first lesson they should learn is obedience. Never, however, lose your temper and beat your dog. If you do he will always remember it, and it will make him timid and poor-spirited.

The dog was the first animal domesticated by man, and he is man's most loyal pet. From him we may learn fidelity, unselfish devotion, courage, endurance, docility, and willingness to learn. "The one absolutely unselfish friend that man can have in this selfish world," said Senator Vest in his famous "Speech on the Dog," "the one that never deserts him, the one that never proves ungrateful or treacherous, is the dog."

RABBITS *

By DAVID E. LANTZ

THE rabbitry may occupy part or all of a barn or shed, or be built in a sheltered space in the angle between buildings or walls. The indoor rabbitry has decided advantages. The place should be well ventilated, but not subject to drafts of cold or damp air. These may be prevented by ventilators in the roof, or by a system of elbowed pipes passing through the sides of the building and reaching a height of 2 or 3 feet above the openings.

Hutches

Hutches for the Belgian hare should be somewhat larger than those intended for smaller breeds. They should be built

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DOGS

of good lumber, have tight floors, and have at least 12 square feet of floor space and a height of 2 feet. If there is plenty of room in the rabbitry, it is best to have the hutches separate; but they are usually set in tiers or stacks, two or three in height. Each hutch in the rank is complete in itself, so that its position may be shifted at any time.

A convenient indoor hutch is one 6 by 2 by 2 feet, with a movable partition dividing off a third of the space at one end for a nest and sleeping chamber. The partition has a smooth hole, to permit passage of the animals from one part to the other. The front of the hutch has two doors, one of wire netting, the other of wood. The wooden door opens to the sleeping chamber, and should close tightly. It is best to use metal hinges for the doors. The partition may slide in a groove between the doors or may be put in and taken out through one of the door openings.

Outdoor hutches should have sloping roofs and overhanging eaves, to protect them from rain. The screened door should have a sliding cover of wood or be fitted with a removable cloth cover. Small holes bored near the top of the hutch will afford all necessary ventilation.

Movable hutches have some advantages. They may be carried outdoors in fine weather and taken back under shelter at night or during storms. Long, narrow cleats projecting at both ends of the hutch are all that are needed to convert the ordinary hutch into a movable one.

Courts

A rabbit court may be paved or floored, or it may be a grass court surrounded by a rabbit-proof fence. Sleeping hutches inside the court may be small boxes of any sort, if they are stout and waterproof. They should have sliding doors to confine the rabbits, if desired, and should also have small holes near the top for ventilation.

A rabbit-proof fence to inclose a grass court should be made of heavy poultry netting, 5 or 6 feet wide and of 1½-inch mesh. The posts, projecting 3 or 4 feet above the ground, should be well set outside the edge of the court. The netting

is stapled to the posts, leaving a projection of 6 inches or more at the top and about 18 inches at the ground, to be turned into the court. The lower edge should be covered with 10 or 12 inches of soil, to prevent the animals from digging out. The upper edge also is turned inward, to keep them from climbing over. Brackets at the tops of the posts make the best support for the overhanging netting, although horizontal pieces of wood nailed to the posts will answer.

Food and Feeding

The rabbit thrives well on a diversity of vegetable foods. Many writers on the care of this animal prescribe elaborate lists of foods to be followed week in and out. The fact is, that a few staple foods are sufficient, but no animal is more adaptable to sudden changes of diet, so that one can feed what is available or cheap.

The best grain for rabbits is oats, either whole or crushed, though cornmeal, barley, or other grain may often be fed by way of change. The crushed oats are best when freshly broken, and a hand mill for preparing them is a valuable adjunct to a rabbitry.

Hay is a necessary part of the rabbit's diet, and if possible that of the very best quality should be used. It should be entirely free from moldiness, and the unsweated is always preferable. If one has small grounds where suitable grass grows, the mowing may be done at short intervals and the hay thoroughly cured in such small quantities that no sweating takes place. However, if sweet hay is not available, the sweated may be fed to the rabbits without injury, unless it be moldy.

Rabbits require some green foods for winter. Cabbages, kale, spinach, and rape leaves are recommended. Turnips, beets, and mangels are often fed and have been recommended by many rabbit breeders, but they do not keep so well as the foods just named. Turnips, unless kept in the ground, wilt by midwinter and are then of little use. Beets keep better, but, on the whole, cabbages are more economical, as well as more satisfactory in every way. They are usually available until

green stuff grows in the spring. Whatever green food is put away for winter use must be stored where frost cannot touch it, as freezing unfits it for rabbits. Parsnips left in the ground all winter make an excellent early spring rabbit food after the frost leaves the ground in which they grow.

Rabbits should be fed twice daily. Ordinary stock is fed morning and evening, but mother rabbit should also have a noon meal or be given more than they will eat at the other meals. The general rule is to feed only as much grain or green stuff as the animals will consume. Hay is put into the hutch to be available at any time, a part of it being left as litter. The exact amount of grain or green stuff for each rabbit at a meal cannot be stated, as the appetite varies greatly at different times. Observations of the quantity left over when the animals quit feeding will soon enable the feeder to adjust the meals to the needs of the rabbits. Overfeeding is a much more common mistake than underfeeding.

Winter feeding.—In winter one of the meals each day should be chiefly of green food (as roots or cabbage) and the other mainly of grain. Roots, cabbage, celery, and the like should be washed clean of soil, but should not be wet when given to the rabbits. If green food is given in the morning, the evening meal should be whole oats or other grain for mature animals. Those under three months of age should be given crushed oats with a little bran, as they cannot so well masticate whole grain. A little hay should be given with each meal.

Summer feeding.—In summer green food should be the chief reliance, and only a small quantity of hay or grain is needed. Rabbits are fond of all kinds of garden vegetables, besides wild parsley, dandelion, plantain, dock, and other weeds, as well as lawn clippings and other grasses. Agreeable changes in diet are always possible in summer, but overfeeding should be avoided and also the feeding of stuff that is wet with dew or rain. It is best to cut clover or other green food in the afternoon before the dew falls and to spread it under shelter, so that it will not heat, but be still fresh at feeding time.

Unless green food is abundant rabbits should be given water daily. In warm weather the water pans should be filled with fresh water twice each day.

A piece of rock salt kept in each hutch affords a steady supply as needed and makes it unnecessary to supply salt in the food.

Rabbits under three or four months old should be limited in the amount of green food. If allowed too much they are apt to become "pot-bellied." When a young rabbit is seen to grow big about its belly, the use of green food should be discontinued and the animal given plenty of exercise. Under such treatment it will soon recover, but if the green food is continued the disease usually terminates in convulsions and death. Old rabbits are not subject to this trouble.

Ailments of Rabbits

If properly cared for, rabbits are remarkably free from diseases. The more common ailments result from insanitary surroundings, lack of care in feeding, and improper ventilation. The hutches should be cleaned frequently so that they do not become foul. Such ailments as mange, scurf, surfeit, and the disease of the eyes known as ophthalmia are due usually to foul hutches. Cold snuffles and the like result from improper ventilation, sudden drafts of cold air in overheated buildings, and similar causes. The disorders of the digestive organs come from feeding young rabbits too freely of wet and juicy green foods or from too radically changing their diet. Most diseases are preventable, and if the cause is understood remedies will suggest themselves.

GUINEA PIGS*

By DAVID E. LANTZ

FOR four centuries the guinea pig was regarded merely as a pet and bred for show and fancy alone. Being a plastic animal, it was considerably changed during this period, and several strains and modifications of the original were developed. Thus, besides the smooth-haired forms, we have the Peruvian, which is a very long-haired type, and the Abyssinian, a type with rather long hair standing out in curious rosettes all over the body. The long-haired cavies are not recommended for ordinary pets, as their coats need much care. The smooth-haired require less attention and make equally attractive pets. They have the advantages of being easily kept and of never biting when handled. However, it is not advisable to subject pet animals of any sort to much handling or fondling. Even dogs and cats are always the worst for such treatment, and pet rabbits or guinea pigs soon show the results of much handling in their roughened coats and lack of sprightliness. Long-haired guinea pigs, especially if intended for show, require some handling, since the hair has to be brushed frequently. This is best done while the animal rests on a high shelf where it need not be held during the brushing.

Few animals are as easily raised as guinea pigs. They are much less subject to diseases than rabbits.

Selection of Stock

For all purposes, except show, the only kinds of guinea pigs that should be grown are the smooth-haired varieties. These are of several colors. Those with pink eyes are albinos, usually pure white, but sometimes more or less marked with obscure spots. Occasionally an individual guinea pig is of a single color other than white. Thus they may be red, gray,

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brown, or glossy black, but it seems impossible to produce a pure strain of self-colored stock, except the white. The majority of domestic cavies are spotted, the common colors being fawn, light gray, red brown, dark brown, and cream, interspersed with white or black or both white and black. The pigment of the hair extends also to the skin, which is white only under white or cream areas of fur.

Hutches and Pens

Two general methods of managing guinea pigs have been advocated—courts and hutches. In court management the animals are kept in open or covered courts in which they have considerable room to exercise. The courts are divided into smaller runs, each of which has its own hutches or sleeping shelters. The size of the runs is governed by the numbers of animals to be kept in them. A run 6 by 10 feet would accommodate 30 to 50 guinea pigs. In a warm climate this method has certain advantages. It entails less labor in feeding and cleaning than is required under hutch management. However, for most parts of the United States indoor hutch management is the only plan that can be recommended. In cold weather artificial heat should be supplied. In fact guinea pigs do best when the temperature is not allowed to fall much below 65° F. It is true that they are often kept in outdoor hutches in winter, and that huddled together in warm nests and well fed, they survive the low temperature; but such management cannot be recommended. The animals do not thrive well under it, and there is great danger of serious losses of the young through pneumonia. They should not be subjected to sudden changes of temperature nor to dampness.

Guinea pigs require about the same kind of accommodations as rabbits. The same hutches would answer, but they may be smaller for guinea pigs. Hutches made of packing boxes laid on the side and fitted with a door in front would answer every requirement.

A shelf about four inches high is recommended for the back part of each hutch. The space under the shelf is a convenient

retreat for females that have young, while the shelf itself is nearly always chosen by the animals as a sleeping-place.

Food and Feeding

Guinea pigs require about the same diet as rabbits. They eat frequently during the day and need a constant supply of staple dry food. Three articles should be constantly in each hutch or run—a pan of water, a piece of rock salt, and a pan of dry grain. The last may contain oats, bran, or chopped grain, and the water should be supplied fresh at least once a day. The animals should have also a constant supply of hay, of which they eat large quantities, and a daily feed of green stuff. They eat almost every kind of green food that is relished by rabbits—cabbage, celery tops, and lettuce are especially acceptable, but fresh-cut alfalfa and clover, spinach, kale, rape, and the like are also desirable green foods. For winter it is best to have a good supply of cabbages. These may be stored in the field, covered with leaves or straw, with a layer of soil on top, and may be brought in as wanted, so that they do not need to be fed in a wilted condition. With a plentiful supply of green food, guinea pigs drink but little water, yet it is well to have water always at hand for them. In the absence of green food, water becomes an absolute necessity, as they refuse to eat grain without it.

Diseases and Enemies

Guinea pigs are not subject to many diseases. Their susceptibility to ailments is closely related to the quality, quantity, and kind of food eaten. Improper, irregular, and deficient feeding are common causes of inflammation of the stomach and bowels, from which losses among the animals may be very great. Sudden changes of temperatures, particularly downward to the freezing point, and insufficient and improper ventilation are common causes of pneumonia, which is an extremely fatal disease among guinea pigs. Bountiful and judicious feeding, cleanliness of surroundings, pure water,

abundant room, reasonably constant temperature, and proper ventilation are almost certain preventives of diseases. The coats of guinea pigs should not be allowed to become wet, and the hutches should be carefully guarded against dampness, which is a common cause of fatalities among the animals.

The chief enemy of the guinea pig is the common rat. This pest is popularly supposed to avoid premises where guinea pigs are kept. On the contrary it is attracted by the grain fed, and will not only steal the food of the cavies, but has been known to gnaw through the hutch walls and devour the young. The extermination of rats after they have thoroughly established themselves about the premises is no easy task. Preventive measures are usually much more effective. In a neighborhood that is rat-infested, buildings intended for housing guinea pigs should be made rat proof.

ENJOYING EACH OTHER

TABLE TALK IN THE HOME

By WILLIAM BYRON FORBUSH

DO you want to be a fascinating person? To be an effective man? To be enlightened and broad-minded? These good things are all within your reach. Without wealth or unusual ability you may secure them. The method is simple. It consists wholly in what you talk about at the table.

The Chief Method of Culture is Conversation

School "does not have time" for conversation. An unusually modern principal surprised himself the other day when he found by careful estimate that in his great school building the children each had an opportunity to talk aloud one half-minute in every two hours.

Yet conversation is a mighty mode of power. My favorite test of an educated man is whether I could ride all day on the train with him without being bored. Talk is the principal instrument of the salesman, the philanthropist, and the executive, and the most useful tool of the manufacturer, the superintendent, and the engineer. Yet most of us have not taken as much trouble to master this fine art, as we have to learn bridge or lawn tennis.

How do you spend the hours at table? Some people complain about money or the meals. Some gossip. Some, as Lord Bacon said, let "their thoughts pass in smother."

Every schoolmaster can detect the pupils that come from homes where the conversation is worth while. Such children have a big background of general information, an alertness and eagerness to learn and an open-mindedness that characterize them as the most hopeful students in the room. Such young people make good in the world's work. They are not

childish and dependent, but they know where to take hold and when to let go.

How to Conduct It

Talk, to be good, has to be prearranged. Here are some homely hints about how to do it.

Begin right. Stand around the chairs before you sit down and sing a song. Start with a story. Taboo the food, the neighbors, the weather, or personal scolding, as table-topics.

With such a keynote you are less likely to bolt your food. The common meal will be lifted above the level of greediness. Your manners will improve. You will be less ill-tempered around the house, and you will go gladly to the day's work.

You need a talk-leader, to give a good kick-off. The Greeks called this official "symposiarch." Mother is a good one. Let her suggest topics. A card-catalogue of them is not to be despised. Or you and your brothers and sisters can preside in turn. This gives every hobby its hearing and prevents any individual from becoming piratic.

Suggestions as to Table Talk

Things Seen. Curious characters; costumes of foreigners; displays in shop windows; a new invention; the migration of birds, bird songs heard or early birds seen; indications of the change of the season.

Here are some questions that may be asked to bring out observation:

What is the largest star you can see to-night?
Why are two stars in the Dipper called pointers?
What color are crows' eggs?
What use are crows to farmers?
How does a dog know a stranger?
What are some of the pets kept by sailors in our navy?
Does a bird ever sail with his tail toward the wind?
How can you tell an oak tree?
Why is salt water not good for plants?
What makes us sneeze?

THE EVENING HOUR

From a Painting by Knut Ekwall

What is the purpose of holes in the young bark of a tree?
Why does a duck never get wet?

Another kind of questions may be propounded which have no direct connection with immediate observation, but which are thought-starters. Such are these:

What makes a bee hum?
Does a tadpole know he will lose his tail?
Where are a frog's ears?
How did a pig nearly cause a war?
How did we get the umbrella?
Why will a rug smother a fire?

Things Read. From the newspaper: father's comment on the political news; brother's "dope" on the sport situation; sister's on the latest in fashions; a new idea in science; a fresh discovery; a recipe for mother; the brightest cartoon; something from to-day's lesson in a school textbook; a favorite poem; novels or plays summarized.

Famous Events. Keeping track of great anniversaries; discovering one significant event in each century since Christ, one each morning; talking about one new country every month; each member to pretend that he is a citizen of a different nation, and to be responsible to tell what is going on in his "native land."

Hobbies. Arrange that each member have a chance in turn to tell the rest about what he is much interested in. "If a person liked *anything,* if he took snuff *heartily,*" says Hazlitt of a certain company, "it was sufficient."

Big Movements. There should be room at table to tell about betterment movements in the city or nation, such as the new playground; the Boy Scouts; what the Y. M. C. A. is doing; how to keep the streets clean and safe; how the nation's wards, the Indians, are being taken care of; what progress the Armenians or Belgians are making since the war, etc.

HOW TO BRIGHTEN "THREATENING WEATHER" IN THE HOME

By THE EDITORS

THERE are days in every household that may be termed "weather breeders." The thermometer is high, and the barometer is decidedly low. As the Forecaster would say: "Air close, weather threatening, with probabilities of frequent thunder showers."

On such days we have with us "the terrible-tempered Mr. Bang," and we should look for "the outbursts of Everett True."

We generally know what is coming early in the morning. Children snap at each other like young dogs, somebody starts crying before breakfast, and it is not long before you hear a crash which shows that some cherished object has been thrown or has fallen to its ruin. Grown-ups look at each other significantly and remark: "I guess we're in for it."

These are morally muggy days, and we dread them.

We need not dwell long on the causes. They are generally one of two: fatigue or disappointment. The day after the party or the picnic, or the rainy Saturday, are examples of either.

The Artificial Sunday

We suggest as the only cure-all, this: Have an artificial Sunday.

Sunday means rest and brightness. These are what we all need.

First, for brightness. Unless the weather is impossibly hot, make it a literal brightness. Build the open fire or light the gas-log early in the morning, instead of waiting until evening. Turn on the electricity or send out for candles.

Hang a prism in the window to reflect whatever sunlight there is. Invite Harold to sit by the window with the toilet mirror and throw flashes of light across the room.

Make some symbolic sunshine. Wind up the phonograph for the liveliest dance-tune it holds. Start "Brighten the Corner Where You Are" or "Let a Little Sunshine In" as a family chorus at the breakfast table. Get out the brightest-colored picture-books, and send Marian around the corner for some red paper and gilt paint to play with.

This is simply doing what William James used to advise, "giving reasonable ideas a hearing." It is built upon the idea that not only do we laugh because we are glad, but we are glad because we insist on laughing. If you can once get everyone to laughing heartily, it will at once clear the air.

One mother used to hang out this sign on the mornings of disappointment or worry:

"The dog is in the pantry,
The cat is in the lake,
The cow is in the hammock—
What difference does it make?"

This was taken as a signal by all who were true sports that mother was not to be left alone in making sunshine, and it was the immediate duty of each to start to play the game which consists in making everybody else laugh out loud.

Yes, you can change the household weather, fellow magician, if you try. Long before night the Forecaster will put out this bulletin: "Clearing weather, fresh breezes, and fair to-morrow."

HOW WE SPEND STORMY SATURDAYS

By HAPGOOD MOORE

A RAINY Saturday unprovided for brings the dampness and the storms indoors.

An ancient reading book had a pretty story about "Sunshine Factories." The gist of it was that, if you want to be certain of indoor cheer, you must manufacture the sunshine in advance, and have a stock on hand. Here are a few tried suggestions for brightening Saturdays for school children when they must stay in the house.

Costume Chest

Play "dress-up." This may involve nothing more than to try to look like grown-ups, or it may imply that you intend to engage in charades or amateur theatricals. Why not have a chest of shabby finery and worn-out dresses for the purpose?

"Some Silver Foil"

Children find play-possibilities in the most unlikely things. To them it seems that grown-ups, rather than they, are wasteful. I found this stray verse the other day:—

The grown-ups are so strange and odd,
I often think if I were God
I'd put a stop to their affairs
And never listen to their prayers.

They throw the dearest toys away;
I search the baskets day by day,
And find such charming little things,
Pink blotting pads and curtain rings!

A lovely rag of blue chiffon;
A box of tin to put it on;
A rubber band, an old tin tray;
Some silver foil, all bright and gay.

I wonder and I wonder why
The grown-up people let them lie,
Such lovely things of finest taste
In baskets that are full of waste.

The child's own shop, therefore, is chiefly a repair shop, a place for making what the dressmaker calls "alterations." Glue, string, buckles, fasteners—these are more essential to them than tools.

Fall Dressmaking

The first discovery is the one, natural to woman, that the dolls have "positively nothing to wear." A certain mother opens her piece-bag, in emergencies, and permits each child present, whether home-born or visiting, to select four different pieces. The distraction of making the choice is soothing, and even if simultaneous choice falls upon one precious fragment, amity is restored by drawing of straws.

Then naturally follows the refurnishing of the doll-house for the winter. It may be repapered from bits of old wall paper, and recarpeted with rag-rugs made on the spot or with bright bits of curtain material. The furniture may be cut from old magazines and the catalogues of furniture houses. The garage may be filled from the automobile periodicals, and the conservatory from the bright pages of the florists' catalogues.

New Dolls for Old

If the stock of dolls is low, there are always clothespins. They have the human outline already, and legs. Arms are made with strips of cotton about four inches long and one inch wide, slashed in the middle, pulled over the head of the pin, and folded, with a twist at the end for hands. Dark, raw cotton will make the hair. If the feet are inset and pasted into a piece of double-faced corrugated cardboard the child will stand alone.

One mother aroused new interest in an old doll family by suggesting that they all be renamed to represent the characters of a favorite story. With these new names, ages and

characters one little girl traveled daily from one foreign land to another, having many of the adventures of the Swiss Family Robinson. Another played over the stories of Greek mythology. A third, who was reading Scott's "Tales of a Grandfather," recreated the lives of Bruce, Douglas, and Wallace.

Two Hints for Boys

Revive the nineteenth century art of "spatter work." Rub some India ink in water till it is quite thick. Pin whatever you wish to spatter, like a group of fern leaves, on a sheet of paper. Dip an old toothbrush in the ink and holding it over the paper, rub the bristles gently across a fine-tooth comb. This will spray the sheet. After you have got the tone deep enough and even enough, remove the ferns.

Make type out of cork. Cut out letters or pictures from the end of common corks with a sharp knife, remembering to reverse the letters. The cork will cut easier if damp. Use an ink pad, or, if you haven't any, make one by filling a tin lid with several layers of blotting paper soaked with ink. By having pads of different colored inks you can print your trees green, your houses red and your people black.

"And the cares that infest the day
Shall fold their tents like the Arabs, and as silently steal away."

OUR HOME SUNDAYS

By THE EDITORS

THE principal obstacle to a successful Sunday in most of our homes is that it has become entirely extemporaneous. Because we have for its observance no regular plan, it fails to rest us.

Some of us think we believe in the Puritan Sunday. But surely to accept the Sabbath of the Puritans wholesale is to accept it thoughtlessly. The trouble with the Puritan Sunday is that it is essentially an elderly people's day. It suits grown-ups because it is quiet. But it does not suit children. They wake up just as early as upon any other day. They feel just as much need of exercise as ever. Idleness is not rest but torture to them. Such a Sunday is to them a sort of weekly rainy day.

On the other hand, the automobile Sunday has its equal disadvantages. Granted that the joy of rapid motion is innocent and that it is no more sinful to use a car to travel 50 miles than one's legs to travel five, still it is not particularly restful to be crammed with food and excitement every seven days. The Puritan Sunday had no joy in it, but the automobile Sunday is too restless, noisy and selfish.

Also, while the family can all go in the car, yet the house is part of the family, and it does not seem quite wholesome that we should always all celebrate our weekly opportunities to be together by scrambling away from our own firesides.

Many considerations enter into the making of a perfect family Sunday.

In the first place, father should be remembered. He needs Sunday more than anybody else. Sunday is a weekly Father's Day in America. To-day he should go free. To-morrow he must climb down from the hereafter to the wherewithal.

Mother, too, should be regarded. She deserves that the day should be less rather than more hard for her.

And the children should have their share, lest the Sabbath perish from the earth.

It should also be a clan day. Each should have his share, and all ought to share something in it together.

The salvation of the day itself is to have a timetable. Have breakfast late if you will, but have it together. Let nobody call upon father for entertainment until say 3 o'clock, and leave mother alone after that hour. Have each do his part, and on time. And always let the children get supper on Sunday nights.

Second, Change. I believe in "Sunday best"—best clothes, a Sunday treat, different games, new phonograph records, a Sunday treasure-box. Whatever is new or unexpected, spring it on the family Sunday. The spirit of Sunday in the home should be that of everybody's birthday party.

Third, Uplift. "They tune their hearts, by far the noblest aim," said Robert Burns, "a countryman of the Sabbath." The Sabbath was made for man, we have been told. It was made to remake man, to help us all be whole men and women. Among the Jews it was, and still is, a home day.

"Together" is the watchword for a perfect family Sunday. Once a day, if you will, together at church. Let all be present at every meal. Have such regular events as the monthly walk to the Sunday tree, the family visit to grandma, the family gift to some shut-in.

The home Sunday has room for friends. I don't mean the big dinner or the house party. I mean the simple lunch on the porch. I mean that Mary may give her Tom a picnic in the grape arbor. I mean that Frank may have a cafeteria affair on trays with his chums up in his room.

SUNSHINE IN THE HOME

From a Painting by E. Meisel.

OUR FAMILY CAMP*

By DILLON WALLACE

THE following suggestions are for the boy or girl who wants to make the necessary preparations for a family camp. It is presupposed that mother or the maid is to do the cooking and that the family life will go on about as usual, so far as refinement and custom are concerned, with much simplification.

Anybody can sleep in a tent that somebody else has pitched, or under a shelter someone else has built. One may do this without understanding even the A B C of campcraft. But camping, as we understand it, means far more than that. It includes the ability to select a good camp site, to erect a tent or other shelter in quick time, to provide against bad weather, and also to guard against sickness by taking proper sanitary precautions.

The ability to do these things can be acquired only by practice and experience.

If two trees cannot be found conveniently located against which to build the lean-to, drive two stakes at the proper distance apart, lash the cross-pole to them near their top, and proceed as described.

Sometimes stakes cannot be driven firmly into the ground. In such cases two tripods will answer admirably in their stead. To make a tripod, cut three poles of the proper length. Near the top, or smaller end of the poles, lash them together, then spread the butts, and the tripod will stand alone. Two of these tripods will make an excellent support for the cross-pole.

In case well-leaved branches cannot be found for thatching, grass will do nicely. In places where well-foliaged saplings are to be found conveniently located the lower branches of four

*Used by permission of *Boys' Life*.

or five of them may be cleared off, and the tops of the saplings drawn together and tied. The bunched tops will make an excellent shelter. This may be improved and made nearly watertight by leaning poles against the bent saplings, tepee fashion, and thatching well over all.

In making lean-tos or other improvised shelters considerable ingenuity and resourcefulness are sometimes required. Always erect them with the back toward the wind. I have spent many a comfortable night in the wilderness under shelter of this kind, sometimes when snowstorms were raging. Making good, serviceable shelters is simply a matter of practice.

Putting Up a Tent Alone

Let us suppose it is an A or wedge tent—and this is probably the style most boys will use. Select two trees a convenient distance apart and stretch the ridge rope between them at the proper height, drawing it as taut as possible before securing it. Now peg down the two rear corners, drawing the bottom of the rear of the tent straight and tightly stretching it between the two pegs. Be careful to keep it aligned at right angles to the ridge rope.

Next peg down the two front corners, using the same precautions as in the rear, and also drawing each side taut and straight at the bottom from the rear peg on that side and at right angles to it. This done, the remaining pegs may be put in place. Any slack that may occur may be taken up by bracing up the ridge pole with two crotched poles, one in front and one in the rear.

Should there be no trees between which to set the tent, cut two stiff poles a little longer than the tent is high at the ridge. Peg down the four corners of the tent in the position in which they are to remain. Go to the rear, and with the ridge pole throw a clove hitch around one of the poles an inch or two from the top of the pole and as close to the tent as possible. It will be well to cut a notch around the pole to prevent the rope from slipping down when stretched.

Now lift the pole to a perpendicular position. This will

raise the rear of the tent into place. Grasp the rope to keep it taut to hold the rope and rear of the tent in an upright position, while you go well back, at right angles to the rear of the tent, and secure the rope to a rock, stump, or anything that will hold. It may be necessary to drive a stake for this purpose.

Using the other pole, guy the front of the tent in exactly the same manner as the rear. When the tent is finally pegged down it may be found necessary to tighten the guy ropes a little to stiffen the ridge.

It is presumed that before setting the tent the section of ground which the tent is to cover has been leveled and cleared off by cutting out brush, removing stones, and knocking away lumps of earth with the back of the ax.

Ditching It

Now the tent must be ditched, in order to carry off surface water in case of a heavy rain. For this purpose a ditch about four inches deep should be dug along the four sides of the tent (outside of course), with a drainage ditch leading off on the lowest side, to carry away the water. If the boy is called upon to ditch a tent at a time when no shovel or tools are at hand he will find that a sharp stick will loosen the earth, and a tin plate will remove it.

Making a Bed of Wild Material

Spruce boughs, because they have a greater curve and more body and buoyancy, are better than fir balsam. Break, do not cut boughs or limbs with your ax, for this purpose. Boughs that are too big to break with the hand are too big to make a comfortable bed. I do not mean by this that small sprigs are to be used. They are not, for they possess no spring and pack flat and hard. But it will be found that with a little practice pretty large boughs can be broken easily with the hand. Grasp the bough around the stem and bend it upward and backward, and it will snap off at once, even though

the stem is nearly as thick as your thumb, if it is a coniferous tree. If no boughs are obtainable, grass or dried leaves will serve very well for a bed.

Fire Without Matches

The back of your knife struck sharply upon flint or quartz will throw a spark. Either dried puff balls or fungus-decayed wood will make good material to catch the spark. This is the trick—to catch the spark—but a little experience will teach you how to do it.

Plenty of wood, good water, and good drainage are the things to be looked for in selecting a camping place.

Careful About Fires

In this connection it may not be amiss to enter a caution about fires. Choose a naked piece of earth, if possible, upon which to make the fire. Never make a fire upon dry leaves or dry grass. Clear away any surrounding inflammable material to avoid danger of the fire spreading. Put out the very last spark before leaving it, even for a short time.

In case of rain, or in any case in fact, all articles that may be injured by wetting should be stowed in the tent. Usually if placed around the sides they will occupy little room and will not clutter the tent inconveniently. In case there is no tent a lean-to shelter, well thatched, will be found a good protection. In this case the things should be neatly piled upon poles or branches to raise them from the ground. The lean-to should have its ends protected and stand with its back to the storm.

Building the Latrine

For the latrine choose a spot far enough away to preclude odors reaching camp, and in a position whereby no possible drainage from it may contaminate the water supply.

Dig a pit about two and one-half feet wide and four or five feet long. At each end and slightly forward of the pit

firmly set a post extending eighteen inches above the ground; sixteen inches directly behind each of these posts set another post, which should extend two and one-half inches above the ground. From the front post to the rear post at either end of the pit nail a stiff cross-piece. These are to serve as support for a seat board, which should be about six inches wide and nailed to the crosspieces, flush with the front of the latrine. Another board nailed to the rear posts will serve as a back, and the front may be closed with boards.

If obtainable, a quantity of air-slaked lime should be kept near the latrine, and at least once a day some of it should be sprinkled generously in the pit. In the absence of lime loose earth should be thrown in.

Camp garbage should be burned or buried. If burning is resorted to, a permanent fireplace of stones, built for the purpose, will be found a convenience. No bones or other refuse should be thrown upon the camp ground or in the vicinity of the camp.

Refuse draws flies, and flies are dangerous to health.

The essentials to a good camp, as enumerated by Mr. E. M. Robinson, International Secretary of the Y. M. C. A. for Boys' Work, are as follows:

1. Good water for drinking, cooking, and washing.
2. A body of water for fishing, boating, swimming, bathing, and going about.
3. A wooded tract for roaming, hunting, for shade, for wood construction.
4. An open field for games and sun drying.
5. Sleeping accommodations: tents, a log cabin, deserted house, under a boat.
6. Good drainage for tents, for sanitary purposes.
7. Good outlook, scenery.
8. Seclusion which allows a free dress and manner of living.
9. An agreeable personnel.
10. Discipline, allotment of labor and privilege, freedom.
11. Good climatic conditions.
12. Camp-fire.
13. Abundance of good food.
14. Suitable clothing to rough it and be comfortable.
15. Communication with civilization.
16. Being away from home and home habits.
17. Abundant activity and great quantities of rest.
18. New things of interest to claim the attention.

What to Take to Camp

The following suggestions, for girls and for boys, are furnished by the Philadelphia Playgrounds Association:

What Each Girl Should Bring

LIST OF NECESSARIES

1. Usual outdoor clothing.
2. Two pairs of full-size woolen blankets.
3. One pillow.
4. Towels.
5. Two sheets.
6. One pillow-case.
7. Toilet articles, mirror.
8. Toilet soap.
9. One pair substantial shoes.
10. One pair rubbers.
11. Short skirt or bloomers.
12. One waterproof coat or cape.
13. One sweater or jacket.
14. Outing hat or cap.
15. Several middy blouses.

DESIRABLE ADDITIONS

1. Bathing suit.
2. Tennis shoes.
3. Tennis racket.
4. Fishing tackle.
5. Camera.
6. Hammock.
7. Book or magazine.
8. Any musical instrument, with music.
9. Sewing or fancy-work.
10. Any other things which may add to the interest or enjoyment of the camp should be included.

It is recommended that no jewelry be brought.

(The popular and sensible camp costume is middy blouse and bloomers.)

What Each Boy Should Bring

LIST OF NECESSARIES

1. Two heavy blankets.
2. A sweater or heavy coat.
3. An extra suit of old clothes for change in case you are caught in the rain.
4. An old overcoat or raincoat.
5. Shoes that have good soles, and a pair of rubbers.
6. A comb and brush.
7. A small mirror.
8. A toothbrush.
9. Towels and soap.

DESIRABLE ADDITIONS

1. Tennis shoes.
2. Baseball bat.
3. Baseball glove.
4. Fishing tackle.
5. Bathing suit or swimming suit (full suit).
6. Book or magazine.
7. Any musical instrument, with music.

The Camp Site

All experienced campers agree in the main on what an ideal site for a summer camp for boys is. Therefore, Richardson and Loomis say, we will assume that the Scoutmaster has done his best to secure a place that meets all the following conditions:

1. High, well-drained land with loose, sandy subsoils, at least ten feet above rock or hard-pan.
2. Abundant supply of clear, pure drinking water either from running spring or artesian well near by.
3. Secluded, and at a considerable distance from summer resorts, colonies of "bungalow" campers, villages, picnic-grounds, and cemeteries.
4. Within cheap transportation range of food markets, including dairy and vegetable farms.
5. Near a clean body of water, where swimming, fishing, and boating are possible, but distant from marshes and low, wet land.
6. Free, in so far as possible, from mosquitoes, black flies, midgets, gnats, and other noxious insects.
7. Surrounded by vegetation—not too dense or luxuriant but sufficiently high to afford shade, some shelter, and much natural beauty.

These taken together constitute an ideal camp-site.

What to Eat

This is not a cook-book, and those who go camping will need the advice and directions of their mothers anyhow. The following items, selected mostly from Gibson's "Camping for Boys," and from our own experience, will prove useful as suggesting the articles of food most easily prepared by the amateur:

Breakfast

Fruit: Bananas, berries, cantaloupes, apples, stewed fruit, and berries.
Cereals: Shredded wheat, cream of wheat, toasted corn flakes, post toasties, puffed wheat, hominy grits, corn-meal mush.
Eggs: Fried, boiled, scrambled, poached on toast.
Meats and fish: Bacon, meat hash, meat stew, chopped meat on toast, codfish cakes, creamed codfish, fried fresh fish, creamed dried beef.
Vegetables: Potatoes—baked, creamed, mashed, browned, German fried; baked beans.
Bread: Toast, corn bread, hot cakes.

Dinner

Soups: Vegetable, bean, clam or fish chowder, corn chowder.
Meats: As above, also: roasts; stews, beef or lamb; steak, pot-roast, Hamburg, corned beef, boiled ham, meat pie.
Vegetables: As above, also: corn, stewed, escalloped, corn on cob; peas; summer squash; tomatoes stewed; apple-sauce; greens.
Desserts: Ice cream; rice pudding; tapioca pudding; bread pudding; cottage pudding; sliced peaches; berries, pie.

Supper

Cereals: As above.
Cold dishes: Sliced beef, ham, corned beef, potato salad, cole slaw, pressed meats.
Hot dishes: Irish stew, croquettes, frankfurters, potato cakes, baked beans, stewed kidney beans, thick soups; potatoes, as above; creamed salmon; codfish; macaroni and cheese; potato hash.
Desserts: As above, also: prunes, stewed apples, etc.
Cakes: Gingerbread, sweetbread, cookies.
Relishes: Pickled beets, chow chow, piccalilli.
Drinks (for all meals): Milk, lemonade, iced tea, cocoa.

SEEING THINGS OUT OF DOORS

Compiled by THE EDITORS

WE are learning that the best way to study nature is to engage in intelligent, helpful action with living things.

Home Bird-Charts

Just now we are very much interested in the birds. The bluebird, the robin, the swallow and the brown thrasher are already here, as I write. But orioles, bobolinks, and tanagers are yet to come. It is not too late to start a bird-chart in the home. Fasten beside some window a card divided into seven columns: Name of bird; date of arrival; departure; location of nest; height of nest; material of nest; description of nest. It will take all summer to fill it out. Another pleasant plan is to plot a sketch-map of the home-grounds or the block and make a census of the birds' nests by placing a black dot where each is discovered, with some number scheme for identification.

Bird Crusades

A still better way to learn to love birds is to fight for them. We must appreciate their value. Hodge estimates that a robin is worth more than $20 each season for the worms he devours. A single pair of robins, if protected, would have a progeny of 120 million in ten years. But during the past fifteen years our song-birds have decreased at least 50 per cent. The greatest enemy of birds is the cat. A cat is responsible on the average for the death of about fifty song-birds a year. Next is the English sparrow, who pre-empts the nests of other birds and devours their eggs—"a ruffian in feathers." I would not, of course, slaughter cats and sparrows, but I would understand

the necessity of taking sides, and I would build and put up bird-houses and cat-guards.

Engaging a Bird Orchestra

You know to how much care and expense people go to keep birds in cages. Holden's price for a male songster catbird is from $5 to $10. How much more is it worth to have a pair of free birds come and nest by your window, to have them sing for you every morning all summer, and to have them show you and your friends the secrets of their wonderful housekeeping? If you will supply homes, nesting-places and materials for nests, food and water, you can have almost your own choice of the glorious chorus: Wrens for the porch, catbirds for the syringa bush, swallows for the barn.

Children can perform even greater miracles. A wild robin can be tamed to come at call by means of a few meal worms; chipping sparrows will feed from the hand, and almost all nestlings become so contented after being properly fed that they will fall asleep in the palm.

In Volume V of The Treasury is a whole section called "How to Know the Birds," which you ought to study.

The Twelve Secrets of the Woods

These are offered by Ernest Thompson Seton, of the Woodcraft League:

Do you know the umbrella that stands up spread to show that there is a restaurant in the cellar?

Do you know the "manna-food" that grows on the rocks, summer and winter, and holds up its hands in the Indian sign of "innocence," so all who need may know how good it is?

Do you know the vine that climbs above the sedge to whisper on the wind, "There are cocoanuts in my basements"?

Can you tell why the rabbit puts its hind feet down ahead of its front ones as he runs?

Can you tell why the squirrel buries every other nut, and who it was that planted those shag-barks all along the fence?

Can you tell what the woodchuck does in mid-winter, and on what day?

Have you learned to know the pale villain of the open woods—the deadly amanita, for whose fearful poison no remedy is known?

Have you proved the Balsam Fir in all its fourfold gifts—as Christmas Tree, as healing balm, as consecrated bed, as wood of friction fire?

Can you read the story on the Council Robe?

Have you tasted the bread of wisdom, the treasure that cures much ignorance, that is buried in the aisle of Jack-o'-Pulpit's Church?

Can you tell what walked around your tent on the thirtieth night on your camp-out?

Then are you wise. You have learned the twelve secrets of the woods.

Signs of the Weather

Of all the weather signs made by birds, none is more reliable than this one—that high flight means fine weather. Swallows fly high in the evenings, and their loud twittering notes are heard when bright weather prevails; but their low flight is an indication of rain. One reason is that when the air is dry, gnats and flies soar high, but they keep near the ground when the air above is damp. Another reason is that when the weather is clear the air is heavier and more sustaining, and so birds soar with less effort than when the air is light. The barometer tells the story. When the barometer is high, birds fly high, and they fly low when the barometer is low.

Storm Signs

When cats sit with their tails to the fire and wash their faces; birds preen and oil their feathers; fish swim near the surface; trout leap high and feed eagerly; bees stay at home or fly only a little way, as they will not be out in a rain.

When walls are unusually damp; flies are especially trou-

blesome and sting sharply; a slack rope tightens; corns, chilblains, wounds, or sores, itch or ache more than usual.

When a large ring is seen round the moon; the scent of flowers is very noticeable; rainbows are seen in the morning; smoke beats downward; horses and cattle stretch their necks and sniff the air.

When fowls wallow in the dust; sea-fowls fly inland; flies gather in houses; the sun sets behind a heavy bank of clouds after a fine day; the moon rises large and red.

What one likes best to see in the way of weather signs is the fine-weather token. There is one token which has never been known to fail. On autumn mornings, often there is a veil of mist lying over the country, and it is difficult to know what weather the day will bring forth. When, in spite of the mist, spider-webs are on the hedges, and cover almost every inch of the stubble fields, each web loaded with drops of moisture, then one may be sure not only that the day will be fine, but that it will be hot.

Signals of the Sky

The most trustworthy of all signs of future weather are given by the winds and the clouds—the signals of the sky. Certain marked conditions of wind and clouds always betoken certain weather, and that weather always follows. "Every wind has its weather" is an old and true saying.

The white clouds often seen against a blue sky, rising up like mountains of fleecy wool, are most useful weather-guides. When these clouds mount up and up, then drift, rapidly change their shape, and melt away altogether, it is a sign of fair weather.

Against the setting sun, smaller clouds of the same nature are sometimes seen as dark blots, seemingly near the earth, and one can almost see the space between them and the other clouds beyond which the sun is sinking. The dark clouds are the heralds of rain.

When a very bright, clear morning comes after a spell of unsettled weather, people commonly say, "It is too fine to

last," and often they are right. Good weather usually sets in by slow degrees.

The proverb,

"Mackerel sky,
Twelve hours dry,"

is a very true one.

In summer, heavy dews at night mean fine weather; but if in hot weather, after many dewy nights, a dewless one comes, it is a sure sign of rain.

Thunderstorms that come up with the winds will pass over soon; but those that come against the wind will be more severe and will last longer.

Eleven o'clock in the morning is the best time to find out what the weather is going to be for the rest of the day.

"Rain before seven,
Fine before eleven,"

is a good old country saying.

Our rainiest winds are the sou'westers. When the weather-cock swings from west to south, look out for squalls; but when the weather-cock swings with the sun, it is a hopeful sign of fine days.

To the scout, to the hunter, and to all outdoor men, the language of the winds and clouds, and the effect of the weather on wild life form a study of deepest interest and of highest value.

Indian Signs

Lately I have been much interested in the study of sign language, a study suggested, of course, in the country by memories of the Indians. A good deal is made of this in Ernest Thompson Seton's Woodcraft League. His "Woodcraft Manual" tells how to write messages in Indian pictograph, how to understand railroad signals, how to read the flags of the Weather Bureau, how to signal with smoke, stones, and "patterns," and how to talk in the deaf-and-dumb alphabet. This

is really more fun than the secret alphabets that we used to communicate with in school.

You have heard of the young student who defined a lobster to his teacher as "a red bug that walks sideways," to which the naturalist responded: "That is a good definition. The only trouble with it is that a lobster is not red, it is not a bug, and it does not walk sideways." Nature so ruthlessly exposes our inaccuracies as soon as we come in contact with her that our best course is to acknowledge that we don't know and then start on a campaign of exploration.

OUR HOME LIBRARY

The books that should be in the home library are listed in the bibliographies at the end of each of the volumes of THE YOUNG FOLKS TREASURY.

HOW TO READ

By EDWARD EVERETT HALE

FOR reading, the first rules, I think, are: Do not read too much at a time; stop when you are tired; and, in whatever way, make some review of what you read, even as you go along.

Capel Lofft says, in quite an interesting book, which plays about the surface of things without going very deep, which he calls "Self-Formation," that his whole life was changed, and indeed saved, when he learned that he must turn back at the end of each sentence, ask himself what it meant, if he believed it or disbelieved it, and, so to speak, that he must pack it away as part of his mental furniture before he took in another sentence. That is just as a dentist jams one little bit of gold-foil home, and then another, and then another. He does not put one large wad on the hollow tooth, and then crowd it in all at once. Capel Lofft says that this *re-flection*—going forward as a serpent does, by a series of backward bends over the line—will make a dull book entertaining, and will make the reader master of every book he reads, through all time. For my part, I think this is cutting it rather fine, this chopping the book up into separate bits. I had rather read as one of my wisest counselors did; he read, say a page, or a paragraph of a page or two, more or less; then he would look across at the wall, and consider the author's statement, and fix it on his mind, and then read on. I do not do this, however. I read half an hour or an hour, till I am ready, perhaps, to put the book by. Then I examine myself. What has this amounted to? What does he say? What does he prove? Does he prove it? What is there new in it? Where did he get it? If it is necessary in such an examination, you can go back over the passage, correct your first impression, if it is

wrong, find out the meaning that the writer has carelessly concealed, and such a process makes it certain that you yourself will remember his thought or his statement.

Memory

I can remember, I think, everything I saw in Europe which was worth seeing, if I saw it twice. But there was many a wonder which I was taken to see in the whirl of sightseeing, of which I have no memory, and of which I cannot force any recollection. I remember that at Malines—what we call Mechlin—our train stopped nearly an hour. At the station a crowd of guides were shouting that there was time to go and see Rubens's picture of ——, at the church of ——. This seemed to us a droll contrast to the cry at our stations, "Fifteen minutes for refreshments!" It offered such æsthetic refreshment in place of carnal oysters that purely for the frolic we went to see. We were hurried across some sort of square into the church, saw the picture, admired it, came away, and forgot it—clear and clean forgot it! I do not know what it was about any more than you do. But if I had gone to that church the next day, and had seen it again, I should have fixed it forever on my memory. Moral: Renew your acquaintance with whatever you want to remember. I think Ingham says somewhere that it is the slight difference between the two stereoscopic pictures which gives to them, when one overlies the other, their relief and distinctness. If he does not say it, I will say it for him now.

I think it makes no difference how you make this mental review of the author, but I do think it essential that, as you pass from one division of his work to another, you should make it somehow.

Another good rule for memory is indispensable, I think, —namely, to read with a pencil in hand. If the book is your own, you had better make what I may call your own index to it on the hard white page which lines the cover at the end. That is, you can write down there just a hint of the things you will be apt to like to see again, noting the page on which

they are. If the book is not your own, do this on a little slip of paper, which you may keep separately. These memoranda will be, of course, of all sorts of things. Thus they will be facts which you want to know, or funny stories which you think will amuse some one, or opinions which you may have a doubt about. Suppose you had got hold of that very rare book, Veragas's "History of the Pacific Ocean and Its Shores"; here might be your private index at the end of the first volume:

Percentage of salt in water, 11; Gov. Revillagigedo, 19; Caciques and potatoes, 23; Lime-water for scurvy, 29; Enata, Kanaka, 42; Magelhaens *vs.* Wilkes, 57; Coral insects, 72; Gigantic ferns, 84, etc., etc., etc.

Very likely you may never need one of these references; but if you do, it is certain that you will have no time to waste in hunting for them. Make your memorandum, and you are sure.

Bear in mind all along that each book will suggest other books which you are to read sooner or later. In your memoranda note with care the authors who are referred to of whom you know little or nothing, if you think you should like to know more, or ought to know more. Do not neglect this last condition, however. You do not make the memorandum to show it at the Philogabblian; you make it for yourself; and it means that you yourself need this additional information.

Copying

Whether to copy much from books or not? That is a question; and the answer is: "That depends." If you have but few books, and much time and paper and ink; and if you are likely to have fewer books, why, nothing is nicer and better than to make for use in later life good extract-books to your own taste, and for your own purposes. But if you own your books, or are likely to have them at command, time is short, and the time spent in copying would probably be better spent in reading. There are some very diffusive books, difficult because diffusive, of which it is well

to write close digests, if you are really studying them. When we read John Locke, for instance, in college, we had to make abstracts, and we used to stint ourselves to a line for one of his chatty sections. That was good practice for writing, and we remember what was in the sections to this hour. If you copy, make a first-rate index to your extracts. They sell books prepared for the purpose, but you may just as well make your own.

You see I am not contemplating any very rapid or slap-dash work. You may try that in your novels, or books of amusement, if you choose, and I will not be very cross about it; but for the books of improvement, I want you to improve by reading them. Do not "gobble" them up so that five years hence you will not know whether you have read them or not. What I advise seems slow to you, but if you will, any of you, make or find two hours a day to read in this fashion, you will be one day accomplished men and women.

READING THE OLD BOOKS

HINTS FOR PEOPLE WHO DO NOT READ

By LYMAN ABBOTT

YOUR time is limited; your books are few. There is work in the kitchen, in the parlor, in the office demanding your attention; clients to be pacified or provoked; patients to be cured or killed, goods to be bought and sold, children to be tended, furniture to be dusted, table to be set and table to be cleared away again; and for a library the family Bible, Webster's Dictionary, the well-thumbed and oft-read books in the sitting-room, and the genteel and gilt-edged poetry in the parlor, with a limited purse from which to replenish the exhausted library, and limited time with which to use it if it were replenished. This is no fancy sketch, but a photograph of many an American life. How find time, how find means for study in such circumstances, is the problem of many a would-be student who lays down his intellectual life in despair; who in the first twenty years of his life gets an appetite for learning and in the other forty starves to death. Especially is this true of wives and mothers. How shall a would-be student so situated pursue systematic reading and study?

America gives a library to almost every home, in the periodical publications—the daily journal, the weekly paper, and the monthly magazine. Study the newspaper; if possible, study it with encyclopedia, with atlas, with gazetteer; but study it. Waste no time on the shameful scandals, the bitter political controversies, the ecclesiastical broadsword exercises, and the idle paragraph gossip. A war of words is no more dignified in a journal than on the street; gossip is no worthier your attention because printed by *the* daily tattler than when whispered by *a* daily tattler. There is no more fascinating intellectual occupation than watching the course of contemporaneous history. The denouements of Wilkie Collins and

Charles Reade are nothing to those of life's actual drama. The romance of fiction is inane by the side of the romance of facts, and the newspaper is where they are recorded. In this study the monthly periodical will aid you. The world has never known such storehouses of well-selected mental food as are furnished by the magazines. The ablest writers of America are laid under contribution. The ablest artists are called on to add both the attractions and illuminations of the pencil.

But to the journal—weekly or daily—and the magazine you will want to add some study of books. Periodical reading may become desultory reading. It need not, but there is always danger. For courses of study in books observe three rules:

(1) Begin with what is congenial. Choose not what you *ought* to know but what you *want* to know. It is a rare mind that can keep itself to a course of distasteful study. It is not safe for anyone to assume, without proof, that he has a rare mind.

(2) Begin with a short course. Do not lay out, for history, Hume, Macaulay, and Miss Martineau, with the idea that when you have finished these fifteen volumes you will be well versed in English history. That is very true; but you will never finish them. Read Jacob Abbott's "Life of Charles I" or "Charles II," or Macaulay's "Lord Chatham," or Thomas Hughes's "Alfred the Great." One thing at a time; and that thing short and simple. Putting the word *done* opposite a purpose is a wonderful incentive to a large achievement in the next attempt.

(3) Buy a dictionary, an atlas, and, if possible, an encyclopedia. If you have not the money make over an old bonnet. No harm will be done if it cultivates a habit of making over old bonnets. If a man, dispense with cigars for a year. No harm will be done if this cultivates a habit of dispensing with cigars. If this does not supply the increasing demand for increasing facilities try some other economies.

Equipped with dictionary and atlas, never pass a word the meaning of which you do not know; the name of a place the location of which you have not fixed; or reference to an

event which you do not comprehend. In invading a new territory never leave an unconquered garrison behind you.

Theme and tools selected, it still remains to secure time. For the best advantage this should be regular, systematic, uninterrupted. The early hours are the best; when the brain is fresh and the mind alert. To the mind and body trained for it, half an hour before breakfast is worth an hour and a half after supper. But this requires an opportunity to shut out intrusion which perhaps the housekeeper cannot secure; facility to shut out the more subtle intrusion of a thick oncoming crowd of cares, which only a stalwart power of concentration can secure. Some cannot lock the door of the library; others cannot lock the door of the mind. But if time cannot be taken at one hour seize it from another; if it cannot be taken with regularity take it when chance offers. The blacksmith's forge is not a convenient desk; but it was at the blacksmith's forge, blowing the bellows with one hand and holding a book with the other, that Elihu Burritt learned his first languages. The nursery is not the place one would choose for astronomical calculations; but it was in the nursery, beset by her children, whom she never neglected, and interrupted by callers, whom she rarely refused, that Mary Somerville wrought out her "Mechanism of the Heavens," which elected her an honorary member of the Royal Astronomical Society, and put her in the first rank of the scientists of her day. Where there is a will there is a way. He or she that can find no time for study has little real heart for it.

Start a Library

The home ought no more to be without a library than without a dining-room and kitchen. If you have but one room, and it is lighted by the great wood fire in the flaming fireplace, as Abraham Lincoln's was, do as Abraham Lincoln did; pick out one corner of your fireplace for a library, and use it. Every man ought to provide for the brain as well as for the stomach. This does not require capital; there are cheap editions of the best books; it only requires time and forecast.

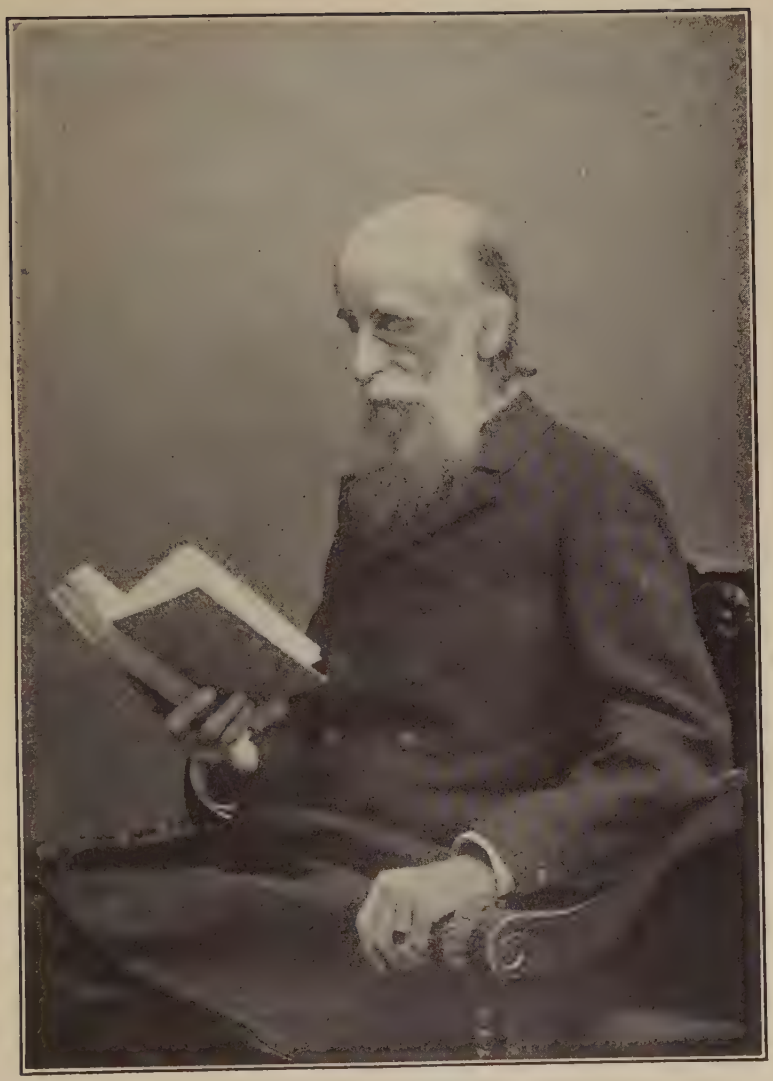
We write in a private library, and a fairly good one for working purposes, of three thousand-and-odd volumes; we began it many years ago, on a salary of $1,000 a year, with five books —a commentary in four volumes and a dictionary. The best libraries are not made; they grow.

At first buy only books that you want immediately to read. Do not be deluded into buying books because they are classics, or cheap, or that you may get rid of an agent. One book read is worth a dozen books looked at. No book is possessed till it is read. Reference books constitute an exception, and an important exception, to this rule. These are the foundations of a good library. The essential reference books are a dictionary, a good atlas, and an encyclopedia. Any school atlas will do, though if you are able to purchase it a good atlas is much better; and best of all is a wise selection of atlases. There is no best encyclopedia; your choice must depend upon your resources, pecuniary and mental.

In purchasing books exercise a choice in editions. The lowest-priced books are not always the cheapest. Buy books of transient interest or minor importance—all novels, for example, and current books of travel—in cheap form. On the other hand, histories, classics of all sorts, and generally all permanent books, should be bought in good binding and good type. It takes well-seasoned lumber to make a good family library.

Have a place for your library. A dollar spent in pine lumber, and a little mechanical skill, will make a larger and better one. Varnished pine is handsome enough for any parlor. A place for books will cry to be filled till it gets its prayer answered. Book shelves preserve books. One shelf of books gathered together is a better library than twice the number scattered from attic to cellar.

Finally, a taste for reading is an essential prerequisite to a useful library. A well is of no use if you never draw water from it. At the same time a good library in the household, accessible to all, from baby to grandmother, is one of the best influences with which to develop a taste for reading. Have no books so fine that they cannot be used.



LYMAN ABBOTT

ON READERS AND BOOKS

By HENRY VAN DYKE

THERE are readers and readers. For purposes of convenience they may be divided into three classes. First, there is the "simple reader"—the ordinary book-consumer of commerce. He reads without any particular purpose or intention, chiefly in order to occupy his spare time. He has formed the habit and it pleases him. He does not know much about literature, but he says he knows what he likes. All is fish that comes to his net. Curiosity and fashion play a large part in directing his reading. He is an easy prey for the loud-advertising bookseller. He seldom reads a book the second time, except when he forgets that he has read it before. For a reader in this stage of evolution the most valuable advice (if, indeed, any counsel may be effectual) is chiefly of a negative character. Do not read vulgar books, silly books, morbid books. Do not read books that are written in bad English. Do not read books simply because other people are reading them. Do not read more than five new books to one old one.

Next comes the "intelligent reader"—the person who wants to know, and to whom books are valuable chiefly for the accuracy of the information which they convey. He reads with the definite purpose of increasing his acquaintance with facts. Memory is his most valuable faculty. He is ardent in the following of certain lines of investigation; he is apt to have a specialty, and to think highly of its importance. He is inclined to take notes and to make analyses. This particular reader is the one to whom lists of books and courses of reading are most useful. Miss Repplier makes light of them as "Cook's Tours in Literature," but the reader whose main interest is the increase of knowledge is often very glad to be "personally conducted" through a new region of books.

Last comes the "gentle reader"—the person who wants to grow, and who turns to books as a means of purifying his tastes, deepening his feelings, broadening his sympathies, and enhancing his joy in life. Literature he loves because it is the most humane of the arts. Its forms and processes interest him as expressions of the human striving toward clearness of thought, purity of emotion, and harmony of action with the ideal. The culture of a finer, fuller manhood is what this reader seeks. He is looking for the books in which the inner meanings of nature and life are translated into language of distinction and charm, touched with the human personality of the author, and embodied in forms of permanent interest and power. This is literature. And the reader who sets his affections on these things enters the world of books as one made free of a city of wonders, a garden of fair delights. He reads not from a sense of duty, not from a constraint of fashion, not from an ambition of learning, but from a thirst of pleasure, because he feels that pleasure of the highest kind —a real joy in the perception of things lucid, luminous, symmetrical, musical, sincere, passionate, and profound—such pleasure restores the heart and quickens it, makes it stronger to endure the ills of life, and more fertile in all good fruits of cheerfulness, courage, and love. This reader for vital pleasure has less need of maps and directories, rules, and instructions, than of companionship. A criticism that will go with him in his reading, and open up new meaning in familiar things, and touch the secrets of beauty and power, and reveal the hidden relations of literature to life, and help him to see the reasonableness of every true grace of style, the sincerity of every real force of passion—a criticism that penetrates, illuminates, and appreciates, making the eyes clearer and the heart more sensitive to perceive the living spirit in good books—that is the companionship which will be most helpful and most grateful to the gentle reader.

Whichever class of readers we may belong to (and I, for one, decline to commit myself), we can all find something to please and profit us. All can unite in prayers for the simple reader, that he may not spend his last dollar for the 435,999th

copy of the newest popular book, but expend his money more wisely in the purchase of—What?

Here is a real difficulty. The variety of opinions among guides and instructors seems to me a most cheerful and encouraging fact. Doubtless each has a good reason to give for his preferences. Doubtless there are treasures to be found in various regions of literature—not a solitary pot of gold hidden in a single field, and a terrible chance that we may not happen to buy the right lot—but veins of rich ore running through all the rocks, and placers in all the gravel beds. Doubtless we may follow any one of a half dozen roads and not go far astray after all.

Let us not take our reading too anxiously, too strenuously. There are more than a hundred good books in the world. The best hundred for you may not be the best hundred for me. We ought to be satisfied if we get something thoroughly good, even though it be not absolutely and unquestionably the best in the world. The habit of worrying about the books that we have not read destroys the pleasure and diminishes the profit of those that we are reading. Be serious, earnest, sincere in your choice of books, and then put your trust in Providence and read with an easy mind.

Any author who has kept the affection, interest, and confidence of thoughtful, honest readers through at least one generation is fairly sure to have something in him that is worth reading.

Let us keep out of provincialism in literature—even that which comes from Athens.

You like Tolstoi and George Eliot; I like Scott and Thackeray. You like Byron and Shelley; I like Wordsworth and Tennyson. You admire the method of Stubbs and Seignobos; I still find pleasure in Macaulay and Carlyle. Well, probably neither of us is altogether wasting time. Jordan is a good river. But there is also plenty of water in the streams of Abana and Pharpar.

There is a large number of courses of reading that any one of us might take with profit. It is foolish to stand too long hesitating at the cross-roads. Choose your course with

open eyes and follow it with a cheerful heart. And take with you a few plain maxims drawn from experience.

Read the preface first. It was probably written last. But the author put it at the beginning because he wanted to say something particular to you before you entered the book. Go in through the front door.

Read plenty of books about people and things, but not too many books about books. Literature is not to be taken in emulsion. The only way to know a great author is to read his works for yourself. That will give you knowledge at first-hand.

Read one book at a time, but never one book alone. Well-worn books always have relatives. Follow them up. Learn something about the family if you want to understand the individual. If you have been reading the "Idylls of the King" go back to Sir Thomas Malory; if you have been keeping company with Stevenson, travel for a while with Scott, Dumas, and Defoe.

Read the old books—those that have stood the test of time. Read them slowly, carefully, thoroughly. They will help you to discriminate among the new ones.

Read no book with which the author has not taken pains enough to write it in a clean, sound, lucid style. Life is short. If he thought so little of his work that he left it in the rough, it is not likely to be worth your pains in reading it.

Read over again the best ten books that you have already read The result of this experiment will test your taste, measure your advance, and fit you for progress in the art of reading.

A FLORENTINE POET
From a Painting by A. Cabanel

HOME HANDICRAFT

TOYS AND INSTRUMENTS EVERY CHILD CAN MAKE

Prepared by THE MANUAL TRAINING TEACHERS OF THE PUBLIC SCHOOLS OF MONTCLAIR, NEW JERSEY*

Edited by DON C. BLISS

Introduction

BY DON C. BLISS

THESE plans and drawings for boys and girls to make things by are unique.

In the first place, they were actually followed out by real young people. For a whole season the boys and girls in the public schools of Montclair, New Jersey, a splendid city with a famous school system, worked on these projects, some of their teachers knowing that these plans and drawings were to be circulated among tens of thousands of young folks all over the continent. They have been tried, and they work. What others have done you can do.

In the second place, these are the toys and tools that boys and girls really want to use. They are graded. Here are moving animals for little fellows, kites and bird-houses and boats for those who are older, and pumps, engines, and electrical apparatus for those still further advanced, who are interested in science.

*The public schools of Montclair, New Jersey, are everywhere famous. This collection of plans with working-drawings is of peculiar interest. It constituted part of the regular work of the pupils of these schools during the winter of 1917-18, so every project is one that has actually been wrought out by real boys and girls. Some of these are their own drawing; the descriptions are practical; the projects involve the things that boys and girls use in their games and sports. The projects are graded.

In the third place, the plans and drawings are simple and easy to understand. Too often articles on this subject are confined to vague description or else they are so technical that it takes a trained mechanic to understand them.

Finally, they can be executed with a few tools and with inexpensive, home-found materials.

Ready-made toys possess but a passing interest to the children for whom they are purchased, while the mechanical principles upon which they are constructed receive little or no consideration. On the other hand, a crudely fashioned toy made by the boy himself necessarily requires a careful study of the mechanical principles upon which it is based and it possesses an added value proportional to the effort expended in its construction.

The wise parent looks beyond the temporary amusement of the child and is concerned for those forms of recreation which help to develop character and add to his educational equipment.

In the field of manual training the results of careless work are at once apparent. This is not true to the same extent in other phases of the child's experience. He may make mistakes in reading or in arithmetical operations and after correction produce a satisfactory result. Let the saw slip or a nail be driven at the wrong angle and the bungled job confronts him at the end, impressing upon him the lesson that painstaking care and absolute accuracy is the only way in which a workmanlike product can be secured.

There comes a time in the life of every normal boy when the desire to build something seeks expression. If checked or thwarted this desire disappears. Given an outlet it may develop and result in determining his life work. A box of tools and a work-bench are a small price to pay for this knowledge. Many an expert wireless operator can trace his interest in his work back to the crude instrument fashioned in the home or school shop.

Success in construction projects involves a consideration of the age and special interests of the child. The authors of this section have had a wide and varied experience in deal-

TOYS EVERY CHILD CAN MAKE

From a Montclair School Exhibit.

ing with school children and have learned what toys possess compelling interest and, what is of even greater importance, how to present the material in a form that will enable the boy to work out the project to a successful conclusion.

Your Work-Bench

BY F. P. REAGLE

Everyone who likes to make things or who likes to work with tools or machines should have a strong, firm work-bench on which to place hammer and saw and well equipped with a good vise, tool-rack and other appliances for assembling work or storing tools and materials. Such a work-bench can be made by any handy boy at a very small cost and with few tools.

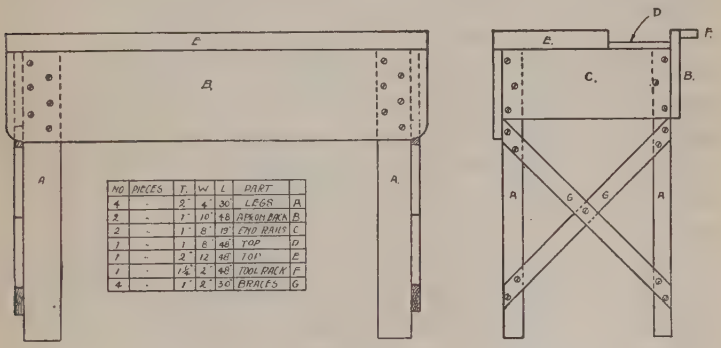


Figure 1

Figure 1 shows this bench in a working drawing. The heavy working top of the bench is made of a piece of 2 x 12-inch planed hard pine, 48 inches long. The back part of the top is constructed of thinner wood ⅞-inch thick, so that a convenient tray is thus formed to hold a few nails, screws, or tools which the worker must have around during his endeavors. The legs of the bench are made of 2 x 4-inch planed hard pine cut to the proper length to suit the worker. For the average boy this would be about 30 inches.

The pieces fastened to the legs around the top are called rails. These rails should be made of 7/8-inch by 8-inch for the front ends and 7/8-inch by 10-inch for the back. The operation of putting a piece of work together is called assembling. In assembling this work-bench it is well to complete the ends first. This should be done by placing the legs on the floor and fastening the end rails to them, using thin brads in the upper edge only. After "squaring" up the legs with the lower edge of the rail, these parts can be fastened permanently either with 8-penny nails or with screws.

The diagonal braces, also shown in Figure 1, should be fastened before going any further with the assembling. These are made of planed 1 x 2-inch pine. These pieces will have to be joined together at the middle with a "half lap" joint and fastened to the legs with 2-inch screws or nails. Screws are always more satisfactory in assembling a piece of work made of wood.

The boy worker will notice that thus far some words have been used which he may not understand. The author hopes that these words, such as "square up," "half lap joint," and many others to come, will be interesting enough to the youthful contractor to cause him to look them up either in the encyclopedia or in the list of books mentioned at the end of this volume.

After the ends are assembled complete, we are ready to fasten the front and back rails. These rails should be cut 48 inches long, same as the top, and the bottom corners either rounded off or sawed off, as shown in the drawing. The front rail should be fastened even with the end rails, both at top and bottom. The back rail, which was 10 inches wide, should be made even with the bottom edge of the end rails, which will mean that it will extend 2 inches above the legs at the back. The reason for this will be apparent when the bench is completed.

We are now ready to complete the table by attaching the top. For the thick, heavy part of this top, the boy contractor should purchase at any hardware store six 2-inch angle braces. These are usually made of iron 1/8 inch thick, 1/2 inch wide

and bent L-shaped, and have holes for screws drilled in them, two on each leg of the angle. These braces should be fastened first to the inside of the end rails and front rail, two on each end and two to the front. In placing the braces, drop them about ⅛-inch below the top edge of the rails. Now turn the bench upside down on the 2-inch top, even up in front and at the ends, and drive the screws home into the top. The back part of top or tray can now be attached, using 2-inch screws, driving them down into the end rails.

The bench is now complete with the exception of a tool-rack and vise.

The tool-rack can be made of a piece of 1 x 2-inch or 1⅛ x 2-inch planed pine. After cutting holes in this piece to hold all the tools needed most often, this piece should be screwed fast to the back rail, even with the top.

A good vise is very essential if the worker is to be happy and successful in his efforts. If it can be afforded, a good, rapid-acting iron vise is the most satisfactory tool. There are many of these on the market, some as low as three or four dollars. The boy worker is advised to inquire of the hardware stores in his neighborhood or ask advice from his carpenter-friend before any purchases are made.

A very satisfactory vise can be made by a clever or handy boy, using an iron screw and nut, such as can be purchased in many hardware stores. The other parts of this kind of vise are made of wood. A piece of hard wood—maple or oak—2 x 8 inches and 28 inches long, will about complete it.

All new woodwork, such as the work-bench and tool-cabinet, should be protected against dirt and dust. This can be satisfactorily done by first applying a liberal coat of linseed oil. After this is thoroughly dry a coat of shellac or varnish will make a lasting and pleasing finish. A good coat of battleship-gray paint will be a substitute for the treatment mentioned above and will also render the bench moisture-proof and dirt-proof. Do not apply any finish to the working top of the work-bench, as bare, smooth wood makes the most desirable working surface.

In addition to the work-bench, with its rack to accommo-

date tools, the worker will find that a tool-chest of the wall-cabinet variety will be a most convenient help in storing out of the dust and dampness the many tools and supplies not needed quite so frequently as those placed in the tool-rack but which should be convenient of access at any time. Such a cabinet should be hung on the wall over the back of the work-bench or somewhere near, so that it can be reached without taking more than a step or two.

This cabinet, which can be made of an old packing-case, will hold all the things which the worker wants under lock and key when not in his laboratory. A convenient size is 12 inches deep, 22 inches wide, and 30 inches long. If made with two or three drawers, about 3 inches deep in the bottom part of the cabinet, it will accommodate a good stock of nails, screws, and brads. A good arrangement is to partition off one or both of these drawers into small compartments, say 2 inches or 3 inches each way. The inside of the door and also the back and sides of such a cabinet, when hung on the wall, will afford hanging space for many tools. Each tool should have its own nails, or nails to hang from or to lay on. To arrange things this way will take a little time, but the worker will save time later by not being compelled to search for the tool wanted.

An assembly table can consist of any discarded table or boards on horses or large packing-case, and will be convenient in putting together many of the coming problems. This method of work will allow the top of work-bench to be free for tool operations, such as planing, boring, etc.

By this time the boy worker is no doubt wondering where the materials mentioned thus far can be procured and what they will cost. The wood mentioned in the description of the work-bench is what is known as "stock" lumber, and should be secured at any lumber yard which deals in building materials.

The tool-chest, if made of a selected packing-case, need cost the boy nothing but a little effort in soliciting the box. If made of ⅞-inch planed pine shelving 12 inches wide, it can be made at small cost.

A keen, live boy who is looking for business should be able to secure enough repairing and work around his neighborhood to earn all the money for his material in a short time. Your neighbors are always looking for someone to put up shelves, take down. and put up screen-doors or window-screens, or to do a little painting here or there. Again, some of the objects described later may be sold for Christmas presents for children and thus net the ambitious boy an income for further addition to his own kit of tools.

The following list of tools can be procured at any reliable hardware store. It is economical in the long run to buy only the best tools that are on the market, as poor steel is expensive at any price.

One 22-inch cross-cut saw, 10 point.
One 6-inch tri square.
One 7 oz. adze eye hammer.
One 1-inch Buck Bros. firmer chisel.
One ½-inch Buck Bros. firmer chisel.
One ¼-inch Buck Bros. firmer chisel.
One No. 120 Stanley block plane.
One 605 Bailey jack plane.
One marking gauge.
One screw-driver.
One 8-inch swing brace.
One auger-bit (Russell Jennings), each of following sizes: ¼-inch, ½-inch, ¾-inch.
One gimlet bit, each of following sizes: 4/32-inch, 5/32-inch, 6/32-inch.
One rose countersink.
One screw-driver bit.
One combination oil stone.

This list of tools is ample for the young student to begin his work, and will not be so expensive as one would naturally think.

As wants increase it is advised that these additions be made:

One 12-inch turning saw.
One 18 x 24-inch carpenter's steel square.
One 24-inch rip saw, 6 point.
One spoke-shave, No. 54.
One brad-awl.
One side-cutting pliers.
One pair winged dividers.
One Yankee hand-drill, with set of bits.
One set iron drills, Nos. 1 to 60.

When buying tools from a local hardware man, or if they are sent for away from home, always ask for any catalogs or advertising material available. The manufacturing companies are constantly issuing booklets which are as good as textbooks, and which they are anxious for you to have.

Toys

BY F. P. REAGLE

The toys described here are given first because they are usually easier to make; second, because they can be made out of small pieces of soft wood taken from store-boxes or orange-crates, and, third, because they will serve when painted in bright colors as Christmas presents for your brothers or sisters, or can be sold to your friends for that purpose and thus add to your fund for new tools and appliances.

The squirrel, bear, chicken and goat, Figures 2, 3, 4, 5, 6, are on wheels, and are intended to be pulled around by a string. The base in each case can be made of a piece of ½-inch thick wood, about 2 inches wide and of such length to suit the animal, or according to the dimensions given in the drawings, Figures 2, 3, 4. Two small strips of wood the same in length as the base, nailed to this base with just sufficient space between them to accommodate the thickness of the wood of which the animal proper is made, enable the person playing with the toy to take it apart and put it together again. The end view of the squirrel, Figure 5, will show how this double base will look.

The wheels can be made of wooden button-molds. The boy who is a good worker can also make them by sawing thin pieces from an old broomstick and boring a hole in the center.

To fasten the wheels to the base use either a short nail with a head, or a round-headed screw. Be very careful to see to it that the hole in the wheel is large enough to allow it to revolve freely.

The most difficult work on the toys is the drawing of the animal itself. The best way for doing this is to proceed the way the artist does who is applying a mural decoration to a large wall space. Decide how many times larger than the picture in the book you wish to make your toy. Now take a common ruler and draw light pencil marks across the animal, both across and up and down, ¼ of an inch apart. If you are going to make your toy, say, two or three times as large as that in the book, select a piece of wood either two or three times as large as the drawing, rule squares two or three times

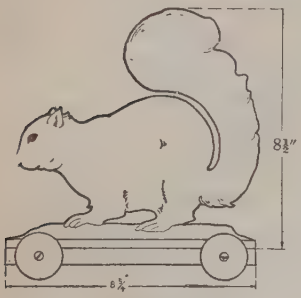


Figure 2

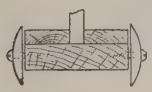


Figure 5

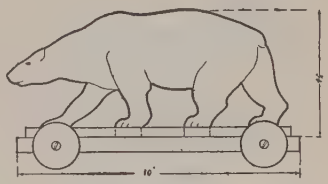


Figure 3

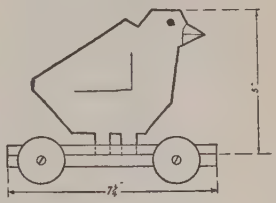


Figure 4

as large as you did on the drawing in the book; number each square in the book, and placing numbers to correspond on your board, you can transfer the drawing, free-hand, quite accurately.

A jig-saw should now be used to saw out the animal from the thin board. In using this tool the operator should sit down and have the part of the board on which he is working project beyond the edge of the bench; as the teeth of the saw point toward the handle, most of the cutting is done on the downward stroke.

After the toy is sawed out and sanded with a fine sand-

paper it should be painted in its natural colors. This painting can be done with watercolor or with an oil paint, such as are procurable in the five and ten-cent stores. A very satisfactory and less expensive medium is "alabastine" or one of the numerous cold-water paints on the market. Mix in a little LePage's or other cold glue before applying to the wood. A few water-color brushes, if washed out after using, will serve a long time for applying this color.

Figure 6

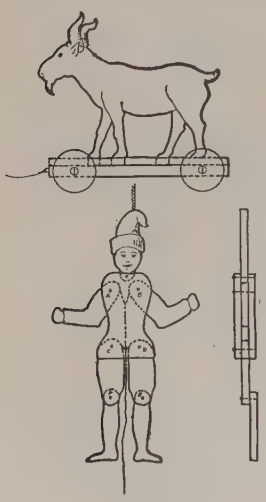


Figure 7

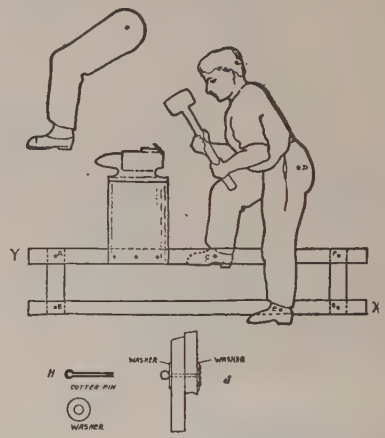


Figure 8

The boy who wants to go further into this type of toy-making can get many good ideas and designs by obtaining from a paper-hanger in his neighborhood some sheets of toy wall-paper, such as is sometimes used to decorate the walls of the child's nursery.

Jumping-Jack and Blacksmith

The next two toys, the jumping-jack and the merry blacksmith, Figures 7 and 8, can be made entirely out of thin wood, such as is found on orange crates or numerous other contain-

ers. Any waste wood about $\frac{3}{16}$ or $\frac{1}{4}$ inch thick will do very well. These toys are meant to be operated by hand, as in pulling the string attached to the jack he goes through a very natural movement of kicking and waving his arms, and the merry smith beats his anvil with all the vigor of the real smith.

The same method of enlarging these toys to the size desired can be used as was described for those on wheels. For the jumping-jack, mark out on the wood and saw out, two lower legs, two thighs, two parts like the body, two arms and one head. As the success of the working of our Mr. Jack depends on the looseness of the joints, be sure to bore or punch the holes ample in size to suit the wire, banker's pin or cotter's pin, with which the joints are fastened together. The joints at A, B, C, D, E, F, and G should be especially loose. The cotter pin will be found to be the most satisfactory in the fastening of these parts. See drawing at H; and, after attaching parts together, see drawing J (Figure 8).

In making the smith, cut out all the parts as shown on the drawing, Figure 8. The man himself is made up of one piece, except the leg which he has raised to his right. This leg is cut out of a separate piece of wood and joined to the body at D. Joint D, together with those at A, B, C, E, F, and G, should be loose, as described previously. The anvil is nailed permanently to the upper rail. By grasping the rails at X and Y and working the rails forward and backward, a real imitation is given of the ancient craft of the smithy.

Boys are always interested in the toy or machine which operates, due to some power or force in itself, such as swinging weights or rubber bands and springs. The remaining three jobs in this brief set are of this kind.

The Dinkey-Bird

The dinkey-bird and balancing horse have their propelling power in swinging weights, and although they look easy they will nevertheless tax the ingenuity of our boy engineer to get the real action out of them.

The dinkey-bird, Figure 9, should be cut out and assembled as shown in the drawing. Make one head and tail, and two pieces like the body, and two legs. Assemble by nailing the two parts of the body firmly to the legs. The joints at A and B should be extremely loose, and the space between the two parts of the body be such that the head and tail will work freely. This can be accomplished by nailing a small piece of wood slightly thicker than the head and tail parts between the two body parts. Such a piece is indicated by dotted lines at

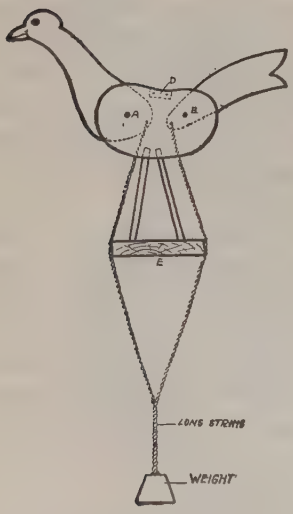


Figure 9

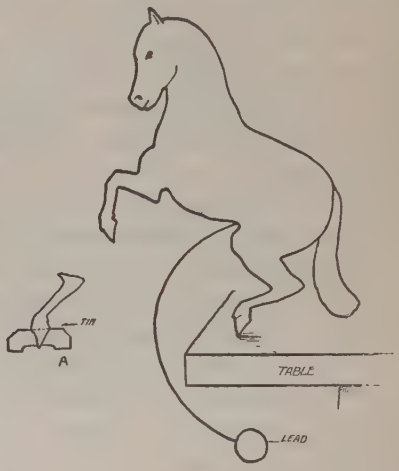


Figure 10

D. After attaching the strings as shown and assembling the bird, it is attached to a small piece of wood the end of which shows at E. This piece is long enough to be fastened to the edge of a table, using either a clamp or a weight. Now by swinging the lead weight like a pendulum our prehistoric bird ducks his head and tail alternately, owing to the fact that the weight of the lead is transferred from one branch to the other of the forked strings running to the head and tail. It may be advisable to run these two strings through holes in the base

rather than have them separated as widely as shown in the drawing. The length of the string from the fork down and the position of attaching it will offer some chance of experimentation in getting the best results. Our ingenious boy can easily make a donkey, duck, or parrot patterned after this bird.

The Balancing Horse

The balancing horse shown in Figure 10, if properly made, seems to defy the laws of nature. After you succeed in getting him to work well, ask some of your scientific friends to explain the principles underlying his action. To make this natural freak, first cut from some thin piece of wood the model of the size desired. Remember that an easy way of enlarging these drawings has been given under the description of the first toys. The stiff wire which is attached to the body of the animal should have sufficient bend in it to clear the edge of the table or shelf on which he operates and should terminate in a lead weight heavy enough to obtain the result desired. This weight can be cast by pouring some hot lead in a hole bored in a piece of wood. By holding the end of the bent wire in the hole while pouring, the weight can be cast fast to it. Free the lead from the wood by splitting the wood away.

The operator may have trouble in making his horse stay on the table while doing his prancing stunt. To avoid this, cut a piece of tin and fasten it in a fine saw cut in the back leg.

Boats

To the boy experimenter the simple boat shown in Figure 11 will be most interesting. The motor boat with rubber band power should be cut to the desired size and shaped like the drawing. Considerable variation can be had by attaching cabin, a funnel made from a piece sawed at a rakish angle from a round stick, a wireless mast, etc.

The back of the boat is cut out U-shaped, as shown, and large enough to accommodate the four bladed paddle wheel. Large boats driven by paddle wheels in the stern are still used commercially in the United States. The paddle for this boat

is made by sawing two pieces of wood which have been made of the proper size to the shape shown in the drawing A, Figure 11, or it may be constructed of four small pieces as shown in drawing B.

A rubber band, or a number of them, is now placed in niches cut in the two arms of the U at the stern of our boat and the propeller inserted between the opposite strands of the

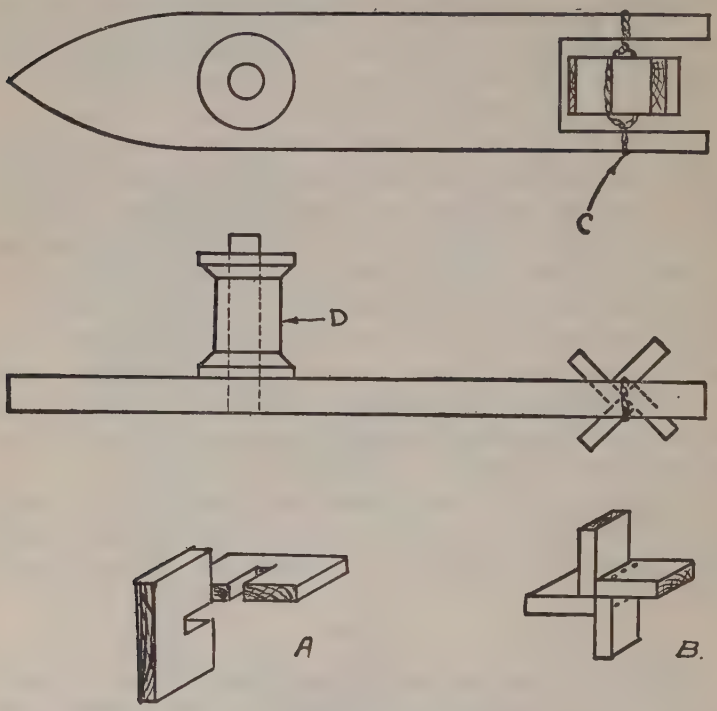


Figure 11

rubber. By twisting up the rubber to the extent allowable by the rubber bands and releasing it after placing the boat in the water it will drive itself through the water like a real boat.

All the toys mentioned thus far can be made with little or no cost to the boy, as the materials mentioned are such as can be procured as rubbish at our stores or around the plumber's or tinker's shop.

Water-Wheels

BY F. P. REAGLE

Different ways of harnessing waterpower so as to make it do the work of man have been devised and studied almost since the beginning of history. Many primitive peoples have seen and taken advantage of this water ever flowing from the high places in the mountains and hills to the sea and capable at every foot's drop of developing irresistible power. Our primitive people have, in a primitive way to be sure, taught us lessons in using this power to grind corn, lift water, and save effort in many lines.

Boys will find this harnessing of water power to run toy machines and miniature mills a very interesting study. Waterwheels as described and pictured in this chapter are either

Figure 13

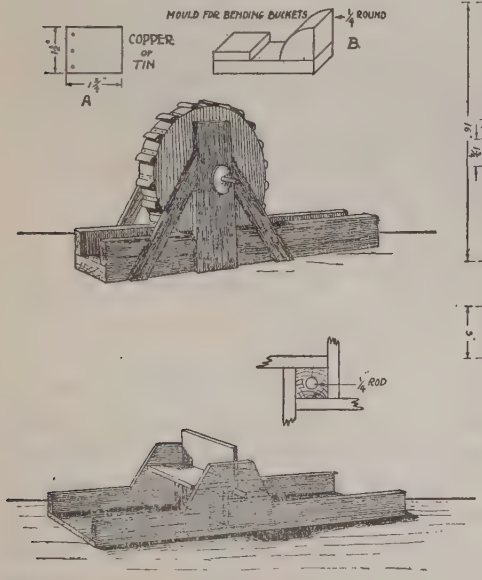


Figure 12

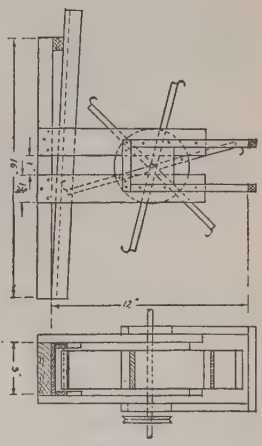


Figure 14

undershot, breast, or overshot—depending on where the current or fall of water hits them—or Pelton and turbine wheels if a supply of water under high pressure is available as in most city and town water-mains.

Undershot Wheels

Three simple undershot wheels are shown in Figures 12, 13, 14. If made large scale, to be used in the current of a small stream of water, if such is available, the entire stream should be run through the sluiceway. If made of toy size, the water from a garden hose turned through the trough will suffice for power. The writer remembers one similar to Figure 15, set up in the current of a small stream of a relative's farm and hitched up to a pump by means of a long wire. Sketch at Figure 16 will explain this installation. The con-

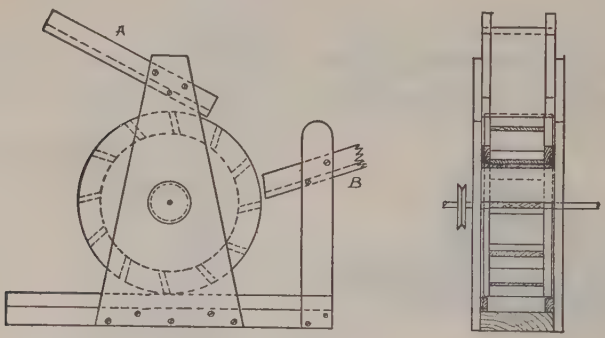


Figure 15

struction of these three wheels should be apparent to our young engineer by this time, because of his ability to work from the drawings and pictures. The buckets in Figure 13 are made from small pieces of tin or copper cut out, bent, and nailed fast. In order to make them all alike, cut them to the same sized rectangles first, as at A. Now by making a bending "jig" as shown at B, and hammering them around the piece of ¼-inch round wood, this result will be obtained.

The wheel in Figure 14 is a small model of those used in some of the Western States. Its striking feature is that the entire wheel can be raised up out of the water when not in use. This is accomplished by making the two bearings so they can slide up and down between the double upright standards on each side.

The ambitious boy might look up in the encyclopedia, or in the bound volumes of the *Scientific American Supplement,* the real machines which this imitates and see if he can place a

Figure 16

small bucket on each paddle so that a little water is raised up by each one and emptied in a trough at the highest point.

The wheel pictured in Figure 15 can be used either as an overshot or breast wheel, depending on whether the stream of water is applied to it through A or B. The wheel in this case can be made out of two circles of ½-inch thick wood and two of ⅞-inch thick wood. The two ½-inch pieces overlapping the ⅞-inch pieces 1½ inches or 2 inches all around. Now, nail the two smaller together and the large pieces on the outside, being careful to have the grain run crosswise with each other and also to have the center of each piece over each other. Procure a piece of tin as wide as the distance between the two

outside pieces and long enough to reach around the smaller, allowing about 1 inch for lap. Bend this piece around and tack fast to smaller circle.

Now rip out and plane up a piece long enough (a number of shorter pieces can be used provided enough length is procured for all the paddles) to saw up into the desired number of pieces. The difficulty here will be to saw and plane these pieces to the proper bevel on the edges. A new tool called

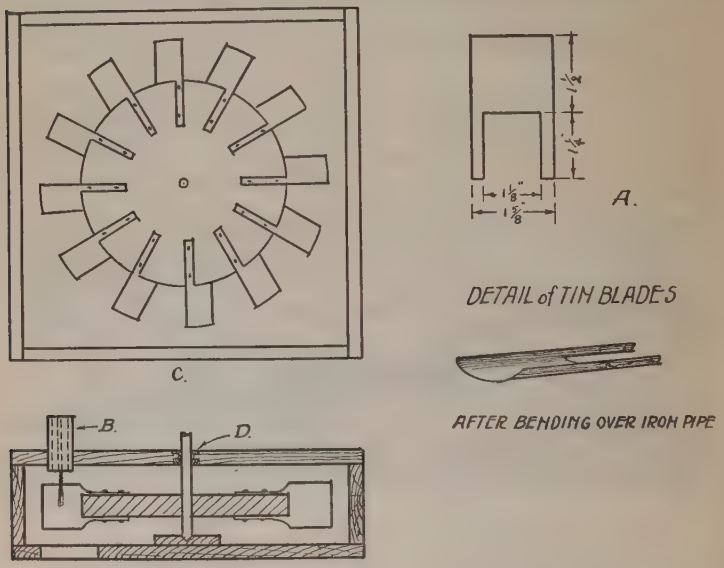
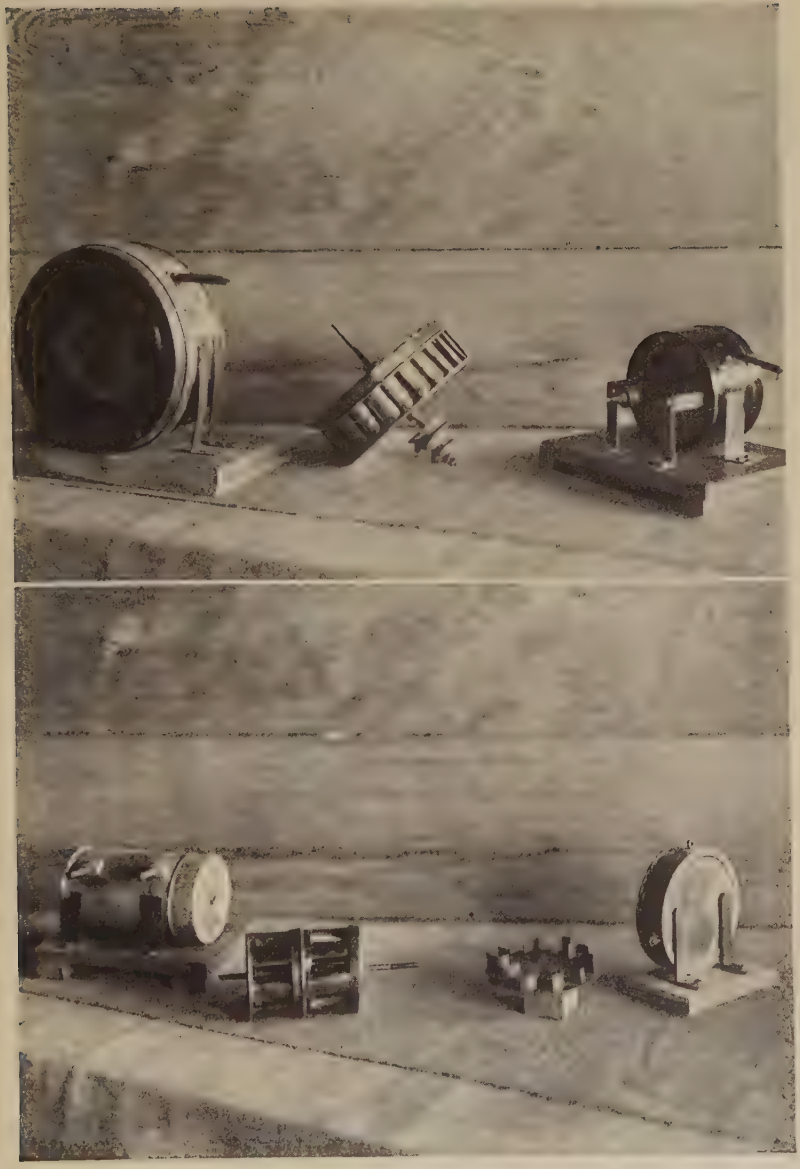


Figure 17

the bevel gauge should be used to test these edges while planing. The rest of the wheel should offer no difficulty. Nail the paddles in place as shown in the drawing from the outside. By attaching a crank rod and pulley this wheel will furnish power to pump water with the simple lift-pump described later.

The Turbine Wheel

The turbine water-wheel in Figure 17 is made to run by force of water running through a hose attached to the city water faucet and connected with water-wheel at B. First a



WATER WHEELS

simple box is made out of half-inch poplar, cypress, or soft pine.

Get two side pieces ½ inch by 2½ inches by 8 inches long and for the opposite sides two pieces 1 inch by 2½ inches by 7 inches. Nail these together with 1½-inch No. 16 brads, the long pieces overlapping the short ones. Then get out two pieces ½ inch by 8 inches by 8 inches for the top and bottom. The bottom may now be nailed on with the same size brads, which you will find convenient and best for this type of work. Do not nail the top yet, but out of a ⅞-inch board mark a circle 6 inches in diameter and cut out with a turning saw, bore a hole in the center with a No. 4 auger-bit, being careful to get it straight. If you are not sure of yourself, place a tri-square on the board and square up your bit with it while boring. Now lay off marks on the round piece you have just made similar to the drawing C. Notice that they all radiate from the center.

Cut twelve pieces of tin similar to the Drawing A, and hammer them over a piece of 1½-inch pipe; punch three holes in the long ends and nail to the round piece. They should be nailed so that they slant about 45 degrees in order that the water coming through at B with force will strike the slanting part of tin blade and thus force it around. A small piece of ½-inch wood about 1½ inches square is nailed to the bottom with a countersunk hole, to act as a bearing for the little piece of ¼-inch iron rod that is now placed through the wheel projecting on the under side about ½ inch. It will work better if the rod is slightly tapered on one end as shown in the drawing. Also after boring a hole in the center of the top so that the rod will work freely in it, it might be improved by putting babbitt metal in. This lessens the friction; see drawing at D. Now if you will fit a piece of pipe or better still a hose coupling at B, after filling it with hot lead, and drilling a ⅛-inch hole in it so that you will not get too big a stream of water flowing through, you will be ready to nail on the top. Underneath where the water enters, a hole should be cut in the bottom about 1½ inches square to allow the water to escape. This tin can turbine will attain high speed, but will not develop much power.

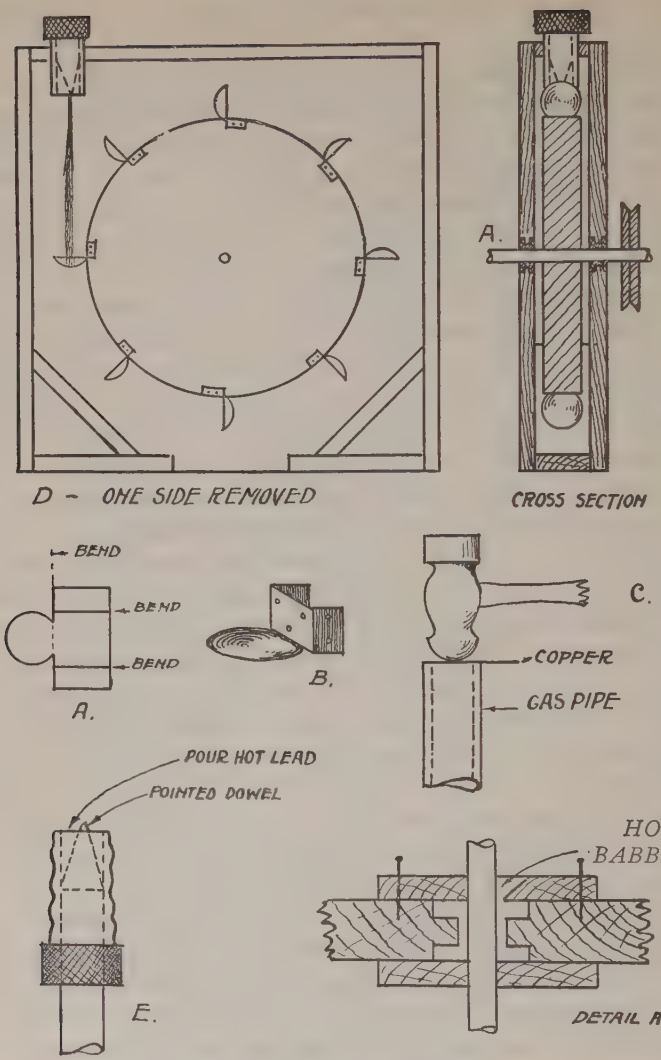


Figure 18

The Pelton Wheel

The Pelton water wheel, Figure 18, gets its power through a small stream of water entering the top of the box under

pressure and striking the paddles squarely in the middle. The box is made similar in construction to the one described for the tin can turbine, only that this one is made narrower (about 1⅜ inches on the inside). The wheel is made of ⅞-inch wood and a hole bored in the center with a No. 4 auger-bit to receive a ¼ inch iron rod for an axle. The buckets are cut from sheet copper 16 gauge or sheet iron about 15 gauge 1½ inches square, then marked and cut as in drawing A, and bent and punched for nails as in B. The round part is hammered over a piece of 1-inch pipe with a ball peen hammer, as shown in drawing C. These are equally placed and nailed top and sides on the wheel as in D.

E shows method of pouring hot lead into hose fixture after pointing a dowel stick and inserting it in fixture until point projects slightly. When the lead is poured and the dowel stick removed you should have a hole about ⅛ inch in diameter. This fixture can be screwed on to a faucet the same as a hose. A hole is cut in the bottom about 2 inches long to let the water escape and braces put on the inside as shown in D to prevent the water choking at the corners and to strengthen the box. With ordinary city water pressure this wheel should turn over a thousand revolutions per minute.

The method of pouring the babbitt metal, which greatly adds to the speed if done carefully, is shown in drawing F.

This water-wheel will furnish enough power for a small emery wheel attached to shaft and also for innumerable mechanical toys.

Water-Pumps

BY R. T. JOHNSTON

A simple lift pump is shown in Figures 19 and 20. This can be made first by squaring up a piece of ½-inch wood 4 by 6 inches and screwing two cleats on either end ½ inch by 1 inch by 4 inches to keep it from warping. Next, obtain a piece about 1½ inches square and bore a hole through it lengthwise with a No. 2 auger-bit. About ½ inch from the top

bore a hole with a No. 4 bit for an outlet into the spout. You can insert a piece of pipe or make a spout of wood as shown in the drawing.

A detail of part of the base is shown in drawing A. A hole is bored lengthwise in the middle of the base and meets a hole of the same size over which piece E is fastened by screws

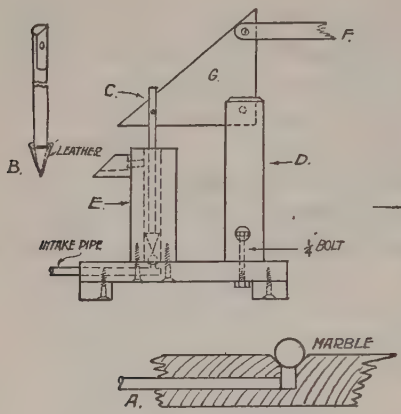


Figure 19

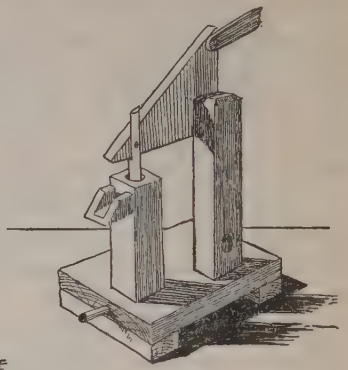


Figure 20

from the bottom or angle braces attached to the sides and to the base. This hole in the base is countersunk so that a marble will act as a check valve as shown in drawing A. The lift is made from a ¼-inch dowel rod with a small piece of leather fastened to the pointed end as at B and part of the upper end cut away so as to make a better joint at C. A little piece of pipe is used as an intake pipe as shown at A.

D is made of ⅞-inch wood and should be slightly higher than E, and held firmly to the base by a ¼-inch draw bolt as shown in the drawing.

The power is transmitted at F which works G on a loose bolt fastened to D. The joint at C should also work freely.

A Force Pump

The force pump is shown in Figure 21. This is made on a base ½ inch by 6 inches by 12 inches with cleats screwed to

the bottom the same as the lift pump. This problem is more difficult, but it is here where the ingenuity of the boy will assert itself. Two glass jars are obtained and the bottom cut out of

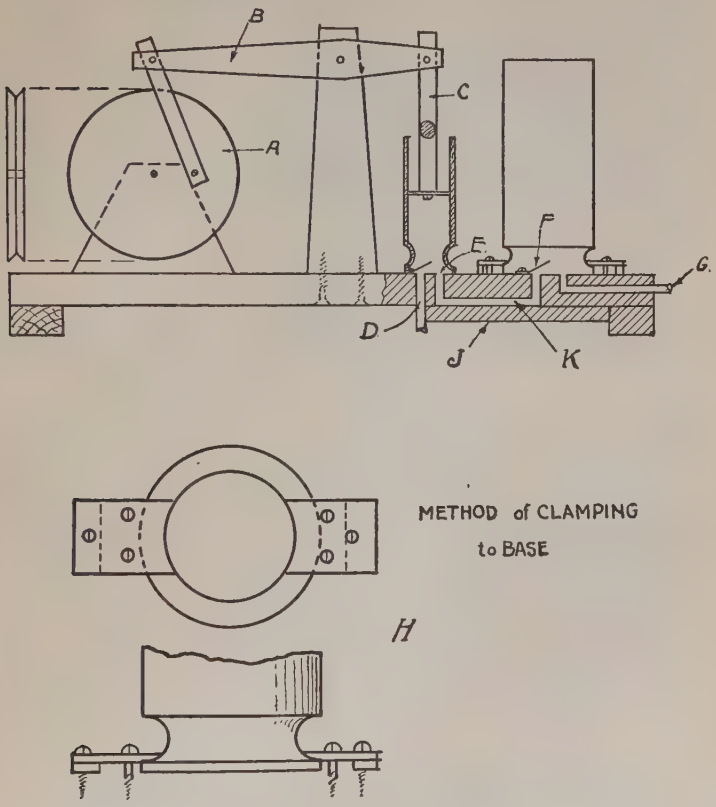


Figure 21

the smaller one. The jars should have necks similar to those shown in the drawing as you will find that type of jar easier to fasten to the base. The power is transmitted by a belt to the pulley wheel A, and thence by walking beam B to piston rod C which has a hard rubber washer attached by a screw from the bottom which on the up stroke takes in water at D which closes on the downward stroke by a rubber washer

fastened on one side and forces the water into the large jar at F where another similar washer is attached and acts as a valve letting the water enter under pressure but not allowing it to escape, only at G. With a stop at G, quite a pressure can be obtained. The drawing at H shows one method of fastening the glass jars to the base. They should be held firmly, rubber bands underneath will prevent leakage. J is an extra piece of wood screwed to the base, after connecting outlet E and inlet F by a groove in the bottom of the base, as can be seen by the drawing. All the places of joining on the walking beam can be fastened with screws and washers and should work freely.

Hydraulic Ram

In the drawing of the hydraulic ram, Figure 22, almost all of the dimensions of the parts are given. The exact size

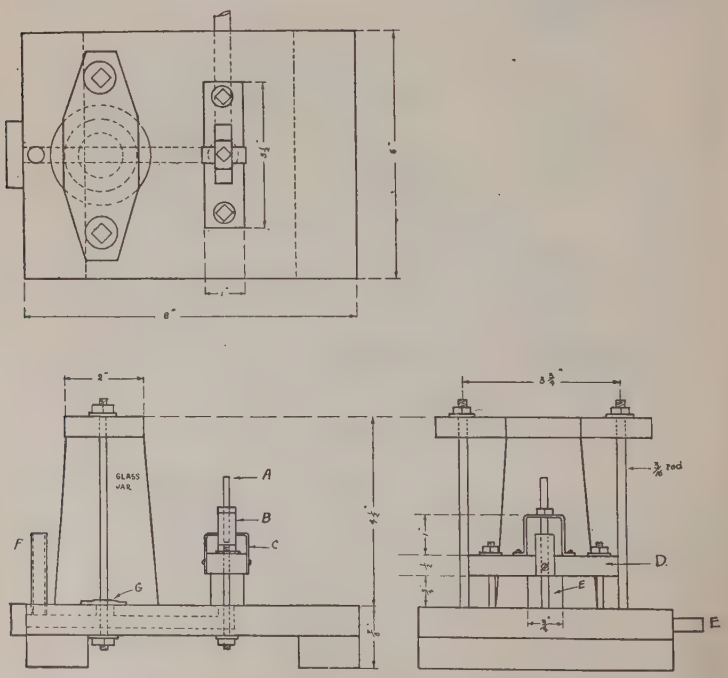


Figure 22

of the glass jar is not necessary as you can change the length of the hold down rods to meet the size of your glass jar. The force is applied at A, which is a ⅛-inch iron rod on the end of which a rubber washer is riveted over a burr. Parts B and C are made from 12 gauge sheet brass and fastened with ½-inch R.-H. No. 4 screws to D. D is a glass tube or part of a bottle with bottom and neck cut off. E is the intake and F the outlet. G is a hard rubber valve covering the intake to the glass jar. The base is made of wood similar to those already described. The top and D are also made of wood.

Bore holes through the base to make proper connections.

Time-Keepers

BY GRACE VINCENT

If a man were in the fields and had no watch, how would he tell when it was noon? Men like farmers and lumbermen become quite expert in noting the position of the sun. Years ago before there were any watches or clocks all sorts of devices were used for telling time. The Malays used a cocoanut shell and the East Indians a metal bowl with small holes in it. As far back as 710 B.C. shadow sticks and sun dials were used. The monument at Washington, D. C., makes a fine shadow stick.

A Sun Stick

Put a stick into the ground and at noon see what happens. Then look at the same stick an hour later, two hours later, etc.

Any boy who is interested in testing out time-keepers may start with the simple sun stick given in Figure 23. The base is 5 by 12 inches with ¼-inch spaces along one edge. At the zero end of the scale a shadow post ½ inch by ¾ inch by 5 inches is fastened, and at right angles to the base. Upon the flat surface of the board, and near one end, a quarter circle is drawn, divided into sections of 5 degrees each. At the center A a ⅛-inch rod is inserted in an upright position.

Place the stick in the south window at noon with the scale from 1 inch to 12 inches in a south to north line. The post will cast a shadow along the edge of the stick, the length of the shadow is read in inches and fourths.

Tip the sun stick up on one edge, the shadow post forming a support to keep it steady with the 12-inch end toward the

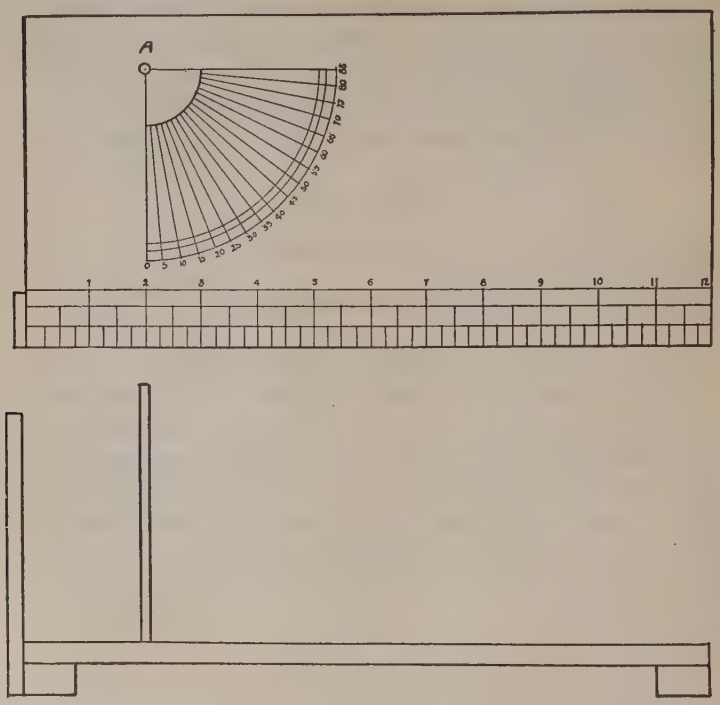
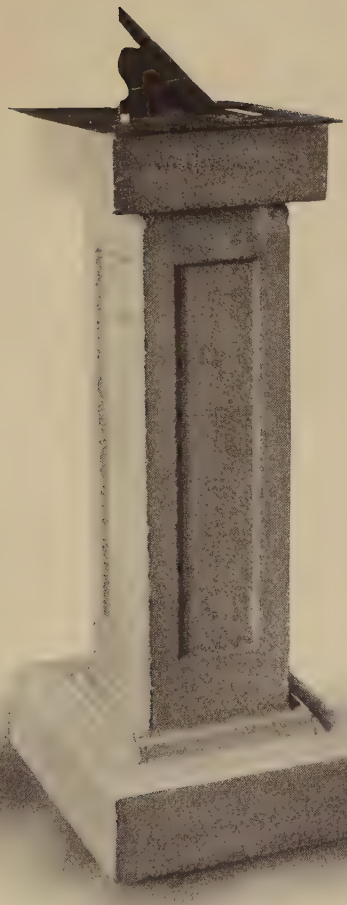


Figure 23

south. The pin will then cast a shadow across the quarter circle, so that the angle may be read in degrees.

These readings may be taken regularly and recorded, and comparisons made of what the boy sees at different seasons of the year.

In Chapter Two of Alice Moore Earle's book, "Sun Dials and Roses of Yesterday," the boy will find some interesting reading along these lines.



SUN-DIAL

Sun Dials

At one point of the world's history the sun dial was practically the only means of telling time. With all the clocks, watches and mechanical devices we have now we wonder how they did it.

One objection to the dial was that it could be used only out of doors and in clear weather.

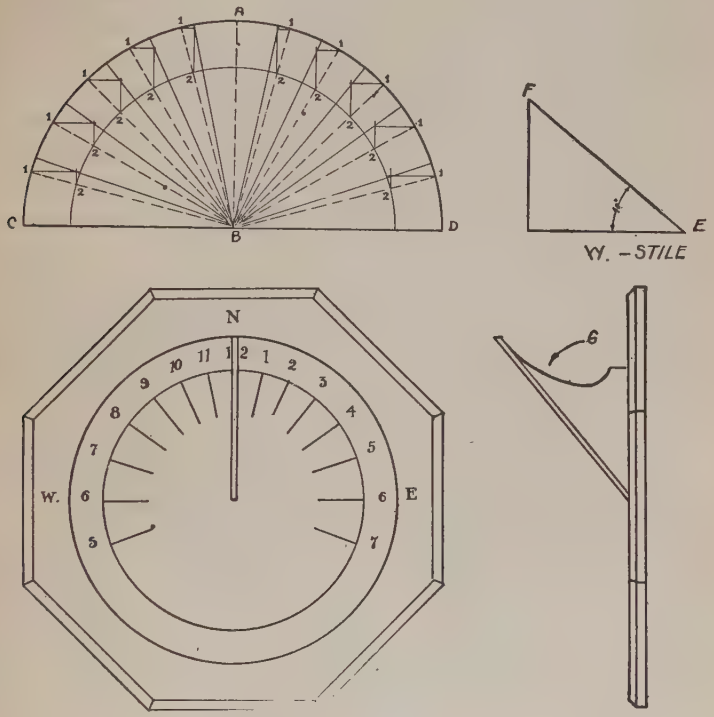


Figure 24

Dials were made so they could be used on a post or any flat surface, or on the side of a building. The one shown in Figure 24 is for a post, and can be made out of scrap wood. The base is of 7/8-inch wood 14 by 14 inches (may be different sizes), and the corners cut off, making an eight-sided figure.

Figure W is called a stile or gnomon. Before making this, one must know the latitude of the place in which he lives. This may be found in any geography, or any teacher will help a boy to lay out the figure and explain the way the dial works. The angle at E in drawing W represents the latitude of the place (New York, in this instance). The back of the stile may be cut away as in drawing at G, as long as the angle at E is not changed.

For the face of the dial draw the line AB, then the line CD at right angles to AB. The points C and D will be your six o'clock points. Where the lines cross at B, draw a circle with radius EF, in Figure W. Then another circle with radius equal to the base of Figure W. Divide your half circle into six equal parts, then each of these into two equal parts, making twelve as points 1, 1, dotted line. The inside one the same, 2, 2. Draw lines parallel to CD, from each of the points of division in the two quarter circles, then draw lines parallel to AB, from each point 2 on the inner circle.

Marking the points where the lines cross, from the central point B, draw lines across the intersection, and where these lines cross the circles will be your hour-points. The half and quarter hours may be made the same way.

In laying out a dial in this way no allowance has been made for the width of stile. If a thin stile, like $\frac{1}{16}$ inch, no allowance is made, but if $\frac{3}{16}$-inch or $\frac{1}{4}$-inch wood is used, then instead of line AB, there must be two parallel lines the same distance apart or the width of the gnomon, and instead of using B as a center for the compass, two semi-circles must be made. An easier method would be to cut the draft into two equal parts along the line AB, and place between them a strip of paper the width of the gnomon.

Water Clock

People who are fond of old-fashioned gardens still have their sun dials, but there was another way of telling time which is very interesting although not used now, from which sprang our own clocks. This is called the clepsydra or water

clock. Some say it was invented by a Chinese long before the time of Christ.

It was made of four copper jars on a flight of steps, the top of each reaching to the bottom of the next. Small troughs

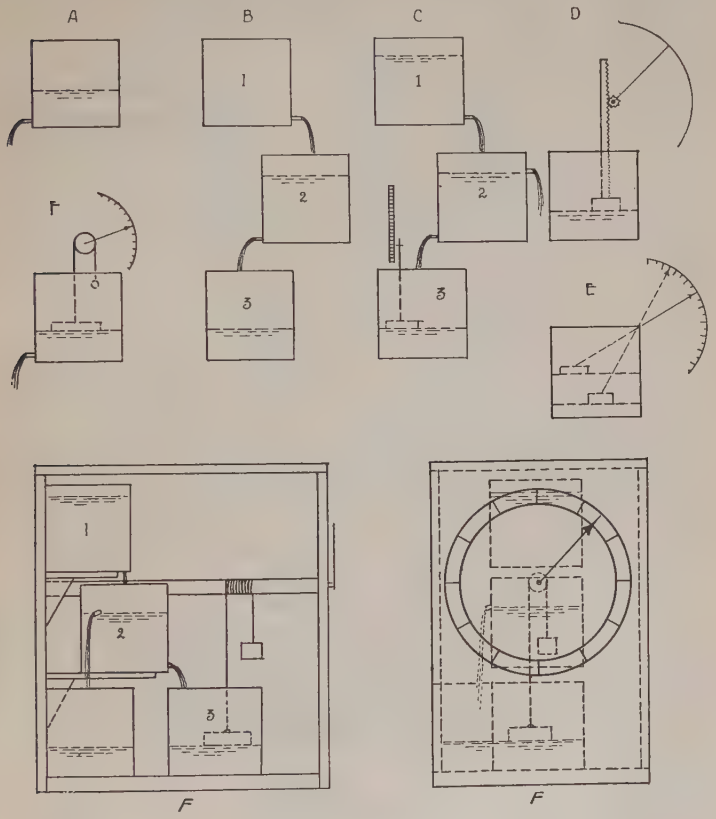


Figure 25

connected them all. The largest jar held ninety-three pints of water. A piece of wood was set in the lower jar and rose as it filled with water. It was set at five in the morning, and five in the afternoon. When the half day was up the water from the lower jar was put back into the upper one.

The clocks given in Figures A, B, C, D, E, F are simple to

make. A consists of a tomato can with a small pipe out of which the water flows. As the water runs out, the time is noted, on the same principle that you have seen illustrated when the sand ran out of the little glass on your breakfast table, when your mother was timing your egg. C is made of three cans. You know that the more water there is in a can the faster it will run out, so the interval changes as the water gets lower. To overcome this several cans are used, and the water in the can next to the bottom is kept at the same level by an overflow pipe in the can above. Can 3 in C contains a float with a rod in it, which rises with the float, as the water runs in. A stick with marks to show hours, halves, and quarters may be fastened to the can, and as the float rises the rod will point to these lines. D can be made of a broken saw and a clock wheel. The idea is the same as in C.

If a more elaborate water clock is wanted, drawing F may be followed. The principle is the same as above. Get an old box which will easily hold your cans, put in shelves for them. In can 3 put a float to which is attached by a string a weight. Just above can 2 put a half-inch dowel rod which will revolve. On the front of the box put a clock face, and to the dowel attach a copper or some kind of hand. Make a small door in the side of the box to get at the cans.

Fill can 1. The overflow will run into can 2, while the rest runs into 3 and raises the float which makes the dowel rod revolve and moves the hand. Can 3 should fill in about an hour. Find out by experiment how to keep the water at the same level in can 2. The surplus overflows into can 4.

Wind and Weather Gauges

BY GRACE VINCENT

Weather Vanes

The vane given in Figure 26, A, is made of ½-inch wood, and laid out in one piece. This may be made any size, but

keep proportions. A good size is 2 feet for the entire length. The tail is 6 inches wide and 17 inches long. In order to get

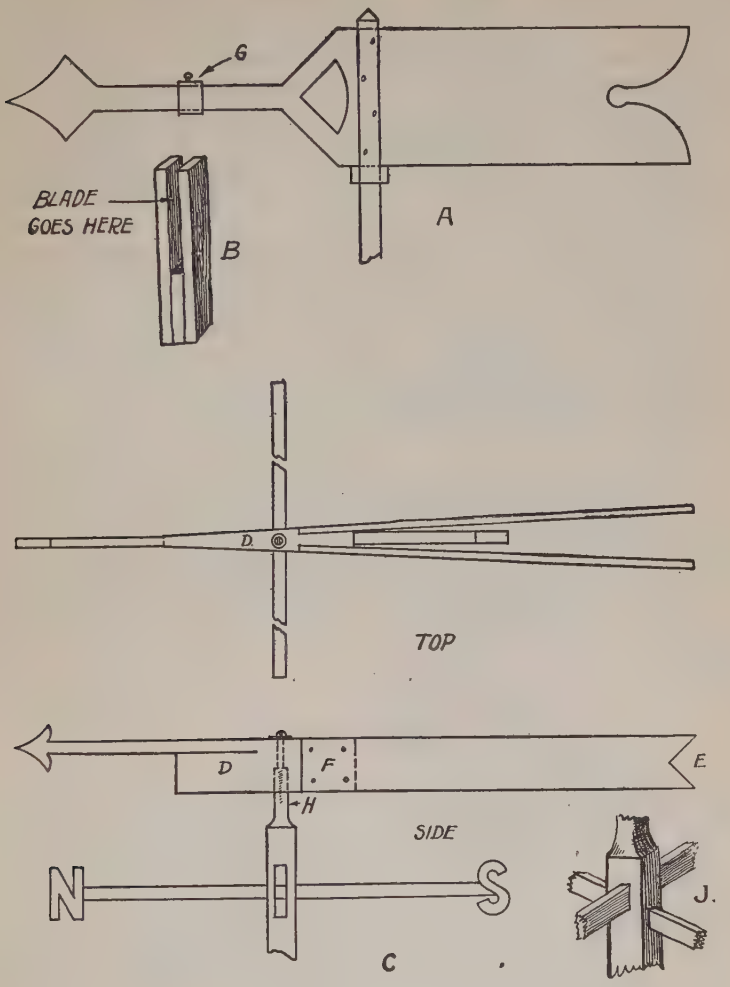


Figure 26

the curve in the back, bore a hole with a 1-inch auger-bit 3 inches from the end, then curve the lines to meet it, and saw out with a jig saw. The opening in the center is cut out by

boring a hole, then taking the jig saw from the frame, passing it through the hole, replacing, and sawing. The rod which holds the vane is made of three pieces of 2-inch wood, two pieces nailed on each side of the tail. These pieces should be long enough to come below the tail about three inches. Between them is inserted a third piece similar in size, except the length as shown in drawing B. Through this third piece is inserted a rod on which the vane turns. To better balance the vane, you may put on the arm a piece of sheet lead fastened with a screw as at G.

A better balanced vane is the one shown in Figure 26, drawing C. Piece D is made of one piece ⅞ inch by 2½ inches, as per drawing. Arrow is cut on one end, the other is rabbeted to receive two ¼-inch by 2½-inch blades, with a V cut in the end as at E. Nail these blades in the rabbet of the ⅞-inch piece at F. The standard is made of a piece 1¼ by 1¼ inches about 30 inches long. This is rounded down to ⅝ inch for about three inches at one end, as at H. The letters may be cut from tin and fastened to arms with a ¾-inch nail. These arms are ½ inch by ¾ inch by 2 feet. A hole is cut in the standard to fit these pieces. They are cut like drawing J, one above the other. Brads are put in to keep them from shifting. Screw the vane to the standard with a 2-inch No. 10 R.-H. Screw.

Wind-Mills

There is hardly a boy who at some time does not love to whittle and make things that "go." There are all sorts of weather vanes from the one shown in Figure 27, drawing A, to very elaborate ones that are made on Cape Cod. Any boy near the coast will want to make "The Happy Jack," which is a sailor lad with arms stretched out and a paddle on each arm. This figure revolves on a rod and the arms turn as soon as any wind touches him.

Connect the wheel and the tail with a piece of wood ¾ inch by ¾ inch by 10 inches. Screw the wheel to one end of this with a 2-inch No. 8 R.-H. screw, and in the tail piece cut a

slot 2 inches deep and ¼ inch wide. The best way to cut out the slot is to bore a hole at G with a No. 4 auger-bit and saw on each side to meet the hole. In this insert the free end

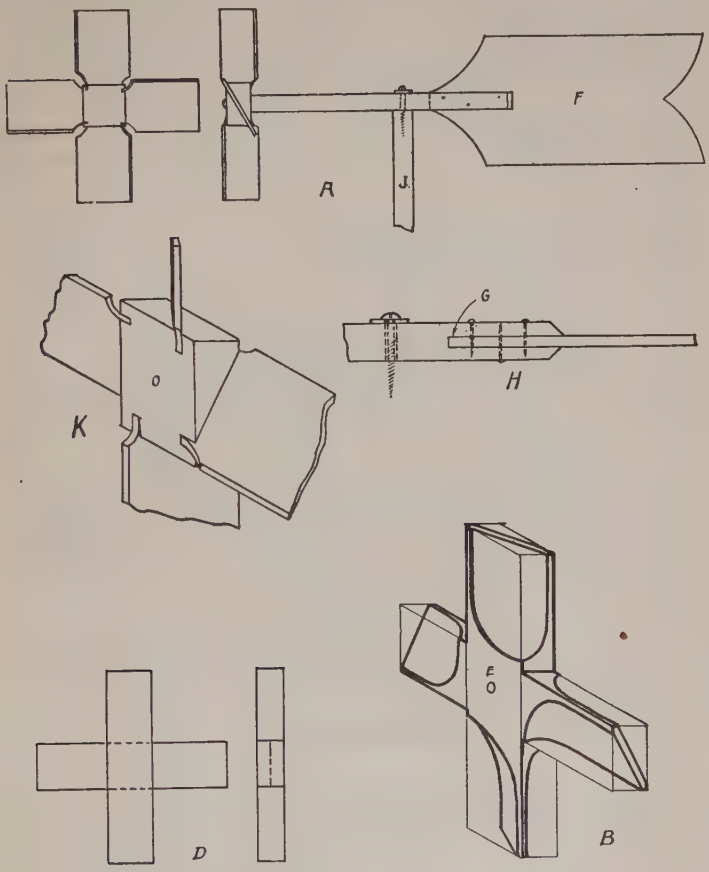


Figure 27

of the sticks as in detail view at H and put in small brads to hold it. The stick J on which the vane revolves should be about 1 inch by 1 inch by 18 inches, tapering the top to fit the ¾-inch stick which rests on it.

The Pin-Wheel

The pin-wheel, drawing B, may be made any length, but a good size is ¾ inch by 1¼ inches by 5 inches. Square your wood to the proper width and length. Make a half lap joint as shown in drawing D. Get the center of the length of one piece. Put a line one-half the width to the left of this center. Lay your second piece on the line and mark the width. Square these lines half way down the sides. Saw just inside the line and chisel out the piece. Repeat the same process on the second piece.

Draw the heavy black lines shown in drawing B and whittle until the edge is about ⅛ inch thick. Bore a hole in the center of the two pieces at E with a $\frac{6}{32}$-inch gimlet-bit. Make a piece of wood for the tail F, ¼ inch by 4 inches by 8 inches, and cut it out like the drawing. Look at Figure 26, A. Place stick in the vise and put the vane across until it balances. This is the place for the hole. Make the same as for the wheel. Screw to the stick.

Any kind of outdoor paint may be put on, different colors being used for separate parts if the boy wishes.

An easier way to make the wheel of the wind-mill is to make a block ⅞ inch by 1¼ inches by 1¼ inches. This is called the hub. Cut four pieces, called wings, ⅛ inch by 1⅛ inches by 3 inches. Saw a diagonal cut on the four edges of the block. Insert the wings and fasten with brads, as in Figure 27, K.

A Weather House

An interesting thing for a boy to make is found in Figure 28. This is a weather house, and will help to show the boy whether he is to play out of doors or work at his bench that day.

The piece of catgut, which holds up the figures, absorbs moisture from the air and untwists, thus causing the man to come out. When the air becomes dry, the string twists more tightly, and the woman comes out. The weather house should be put out of doors, but not exposed to rain or sun.

The drawing has on it all the necessary dimensions for

making the pieces; but just a word about putting the house together. Nail back to the sides and screw on the front. Then nail the bottom on. Fit and fix the roof, nailing into the sides and back only. Place the chimney in position. A cork may be used in the chimney and the gut wrapped around it. Cut a small piece of ¼-inch wood that will easily slip into the box, also a small piece of ¼-inch dowel rod, which is nailed to the

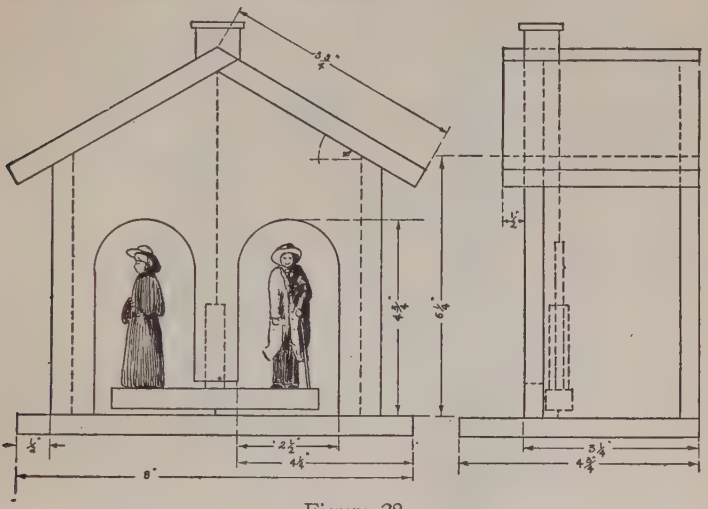


Figure 28

board. Fasten in the gut with glue and a wedge. The figures may be drawn or cut from a magazine-picture pasted on ¼-inch wood and cut out with a jig saw, then nailed and glued to the base.

Kites

Kites are among the oldest playthings in the world. As long ago as 300 B.C. a Chinese general used kites to signal messages from the army that help was coming to an attacked city. Benjamin Franklin made many experiments with kites.

There are many varieties of kites, but three easily made are described here. Figure 29 is a kite with a tail; Figure 30 a tailless kite; Figure 31, a box kite.

The secret of success lies in the proper shaping and balanc-

ing of your kite in its construction, a proper tilting of the kite's surface to the breeze.

The frame-work should be light but strong. In the plain kite, the sticks should be lashed together with string, as nailing weakens the stick. They should be lashed diagonally in both directions with a few rounds between the sticks.

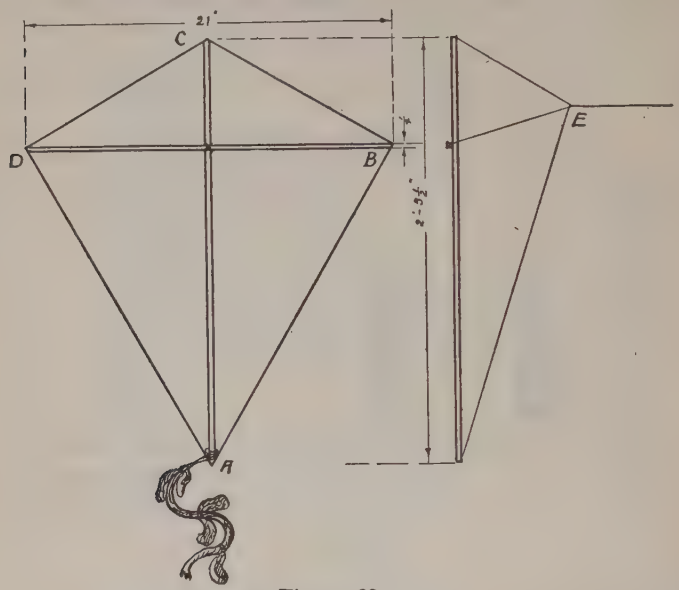


Figure 29

The covering is very important. A heavy tissue paper is good for small kites; for box kites and large plain kites, lining cambric is serviceable.

In drawing on the cloth cover, be careful not to get the goods on the kite too much on the bias, or there will be sagging. The string must be strong. It is as important to the kite as the motor is to an airplane, as it gives a means of control against air currents.

Tailed Kites

Figure 29, a kite with a tail, is made of a stick about 2 feet 5 inches long, and crossed by one about three-fourths the length

of the first one. It is fastened together with a cord as described above. Cord is started at A and continues around fastening at D, C, and B to A again. Cover with paper. Notice how the cord called the "bridle" is attached at each of the corners. The tail fastened at A is long and made of short pieces of paper folded up and tied about the middle with the string of the tail. A piece of cloth finishes it.

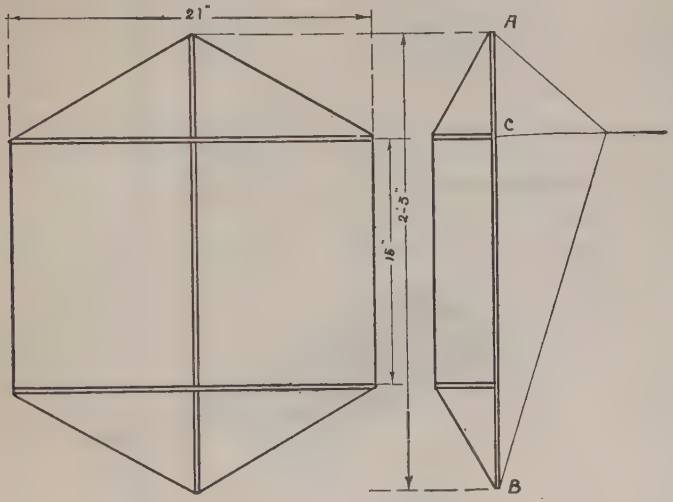


Figure 30

Tailless Kites

The tailless kite must be worked out carefully. This has a vertical stick called a spine, 2½ feet long and two horizontal pieces about the same length. The crosspieces are bowed about 10 per cent. of the length, the upper one the larger bow. String the edge, and cover loosely. The bridle is attached at A, B, and C.

A box kite has four sticks ¼ inch by ¼ inch by 30 inches, eight struts ¼ inch by ⅜ inch by 12 inches, two stretcher sticks ⅜ inch by ⅜ inch by 30 inches; about two yards of cambric. Cut out the sticks to proper dimensions. Place the corner sticks together, and lay out the spaces for the struts. (The

struts are the 9-inch pieces which give the box its shape or width.) Place two corner sticks on the floor and tack each

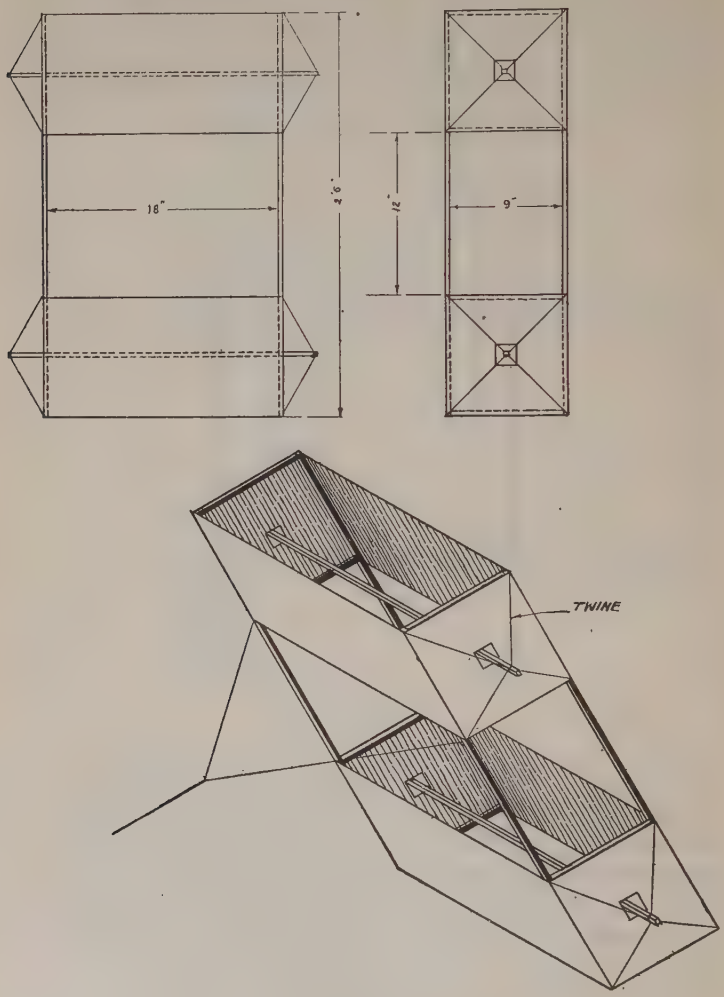


Figure 31

end of each strut in place with a small brad part way. Fasten both ends of one corner stick to the floor and with a square square the frame, and fasten the other corner stick down.

Glue the corners and drive in the brads all the way. Let the glue set. Do the same with the other three struts. Get out two stretcher sticks 30 inches long. Do not cut them to length until after cloth and loops are fastened in place.

To make the cloth cells, take 2¼ yards of cambric and pin to the floor smooth and straight. Lay out enough to cover each end of the kite as if it were laid out in one line. Sew the ends together, hem the cut edge.

Make eight loops of twine to stretch up the kite at each end all the same length. Fasten them to each corner of the end of the kite and bring them to the center diagonally. Make a hole through the cloth in the center of the end of each cell for the stretcher stick to pass through. Notch on end of the stretcher. Stand kite on end with one frame next to you; pass the notched end of the stretcher stick under the loops through the hole, and on through the other side of the kite. Put the centers of the loops in the notch; grasp the centers of the loops next to you and pull on them, at the same time pushing on the stretcher stick. Strain it good and tight, mark stick where loops cross, cut to length, cut the notch and wind with thread. Fix the other stick the same way.

Steam-Engines

BY R. T. JOHNSTON

Under this heading we will endeavor to show the young mechanic how to build three different types of steam-engines. It will be necessary to use more metal, and this will bring in problems of cutting, filing, and soldering. Hero's engine is the simplest and we will take that up first. Obtain a good tin can of the Karo syrup type, with a removable top. The base is made of ½-inch wood about 5 inches square, the upright of the same material about 1½ inches wide and 8 inches long and the top piece 1½ inches by 6 inches. Square up your pieces to size and fasten together with 1½-inch brads or 1¼ No. 6 R.-H. wood screws. Fastening with screws will make the

frame work stronger. Now obtain a darning needle or hat pin about 9 or 10 inches long. Punch a small hole in the center of the top and bottom of the can; be sure you punch the

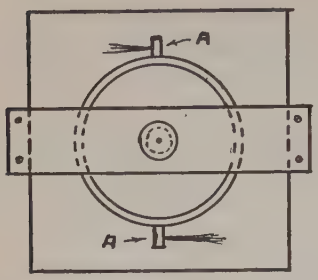
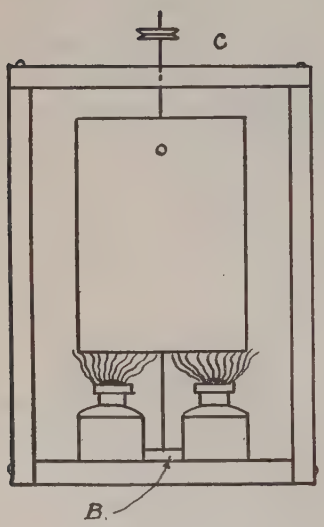
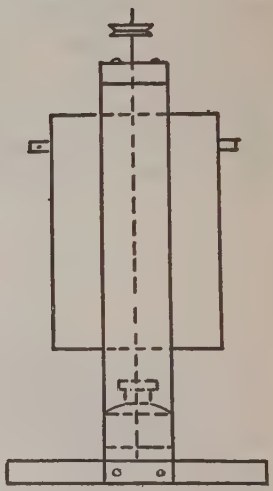


Figure 32





hole exactly in the center so as to obtain an even motion when in operation. Now insert the steel darning needle or hat pin so that it projects about 1½ inches from the top and 2½ inches from the bottom of the can. Be sure the top or lid of the can is on tight; after doing this, solder with soft solder the

steel needle to the top and bottom of the can. You might get pointers on soldering from your nearest tinsmith, but with a little practice you will soon become quite expert. You can buy flux or soldering fluid from a tinner's shop or an electrician's supply store, or, you can make it yourself by obtaining some muriatic acid and adding it to water, about ten parts water to one of acid; then put in some scraps of zinc until it will not dissolve any more. A glass jar with an open top is best to mix this in. After the zinc is dissolved you can keep it in a corked bottle.

Apply this flux with a small brush to the parts you are about to solder. Get a good soldering iron and heat it almost red hot, then tin it,—that is done by rubbing it on a board sprinkled with a little sand. Apply a little flux to the iron, then melt some solder on it. When it holds solder on the four sides of the point, it is in good working condition. Now apply the flux on the tin in the place to be soldered; that is, put a small layer of solder so that it lays flat on, completely covering the parts to be soldered; then heat your iron again, get a drop of solder on the end and apply the iron to the place to be soldered. If you fail at first, try it again until you get a good tight joint. After soldering the steel needle to the top and bottom of the can, make a little tube about ⅛ of an inch in diameter of tin by hammering it over a nail and soldering the joint. Also solder up one end tight. Make two of these, then punch a small hole near the soldered end of each one about as big as a pin head. Now punch two holes about ½ inch from the top of the can big enough to receive your small tin tubes. Place them in the holes and solder. Be sure and face the hole out of which the steam escapes, as shown in part of drawing marked A.

Fasten a small ¼-inch block on the base with a small hole bored part way through to act as a bearing for the lower end of the rod when in position, as shown at B. Also bore a small hole to receive needle at C. A hole about ½ inch in diameter is cut in the top to put water in the can. This can be tightly corked when the engine is in operation. Get two old ink bottles of the same size; partly fill with wood alcohol; put in

round cotton wicking. Fill your tin can about half full of water, remove the top brace which holds the upper part of the steel needle in place, slip over the needle and refasten and your engine is ready to apply a match to the cotton wicking. The

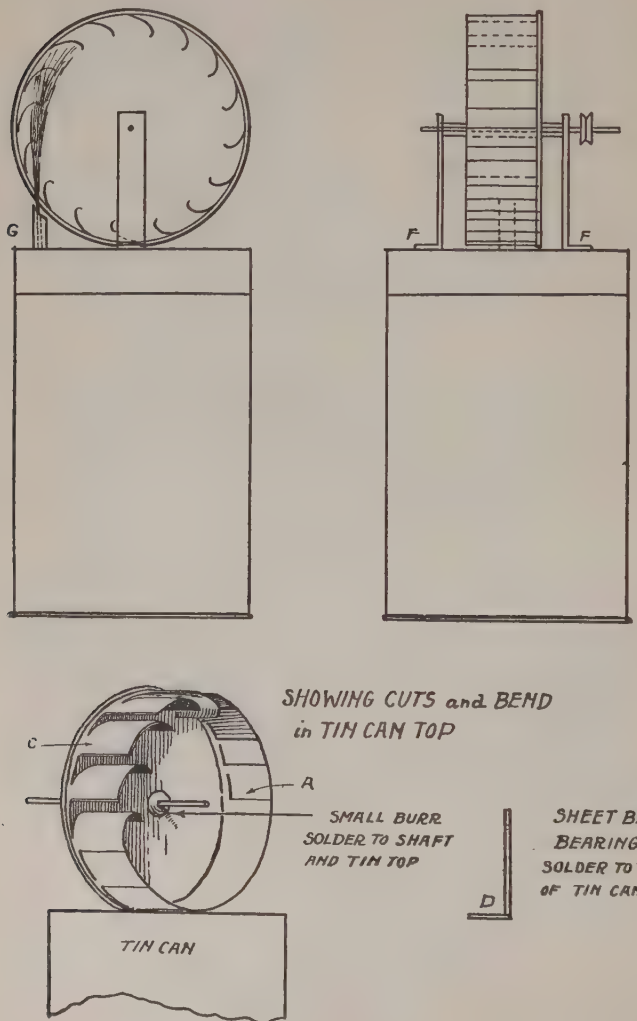


Figure 33

steam escaping from the two small holes in the small tubes revolves the boiler at quite a rapid rate of speed. A small pulley can be attached to the top for transmitting power.

Tin-Can Turbine

In Figure 33 we have a drawing of a turbine type of steam-engine. This is also made from tin cans without the use of wood in its construction. If you obtain a good sized syrup can, all the movable parts can be soldered to the lid and it will not then be necessary to punch a hole to put in water—everything being fastened on the cover the whole top can be removed. This model requires a cover from a baking-powder can and this cover is cut similar to markings at A and bent like those in the drawing at C. These can best be bent with a round-nose pliers after they are cut. Next, punch a small hole in the center; insert a hatpin, slip a burr on opposite sides and solder fast, being careful to get the hatpin centered correctly. Experience will be the best teacher in this. Out of some old piece of sheet brass or sheet iron, cut two pieces about ½ inch wide and 3 inches long; bore a small hole near the ends and in the center of both pieces, large enough to allow the hatpin to turn freely. Bend at the bottom, as in drawing at D. Now slip them over your hatpin shaft on opposite sides and solder the bottoms to the top of your can so that they will set about like the ones in the drawing at F.

Make a little tube or use a little piece of brass tubing, partly fill with hot lead, then make a little hole lengthwise in the tube about 1/16 inch in diameter. Punch hole in top of can large enough to receive the tube, then solder in position as shown at G. Cut off your hatpin just outside of braces and solder small burrs to prevent lateral play. Fill your can about three-quarters full of water; put lid down tight, set over gas or oil stove and when you get up steam and it begins to escape you will be surprised at the speed your engine will turn up if you have made a careful job in the making of it. This one model sets forth the idea. A wideawake boy will be able to adapt this in a number of different ways.

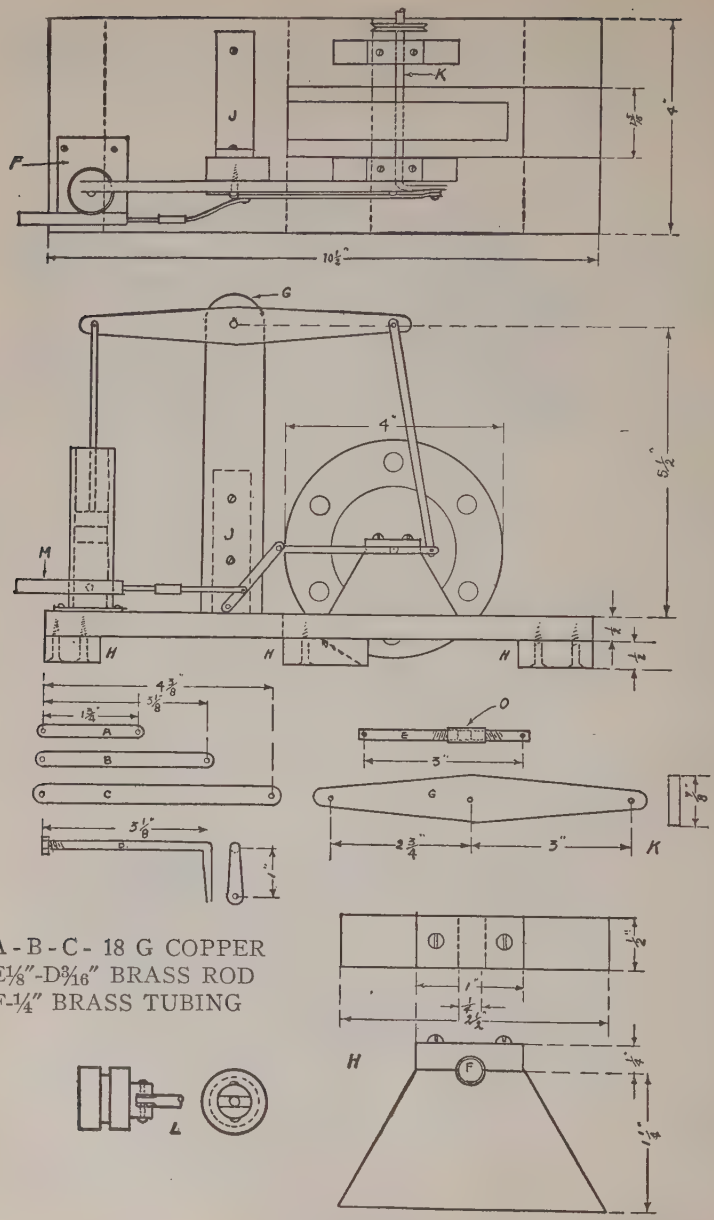

K
J
F
10½"
G
4"
J
M
H
H
H
4⅜"
3⅝"
1⅜"
A
B
C
3⅛"
O
E
3"
G
2¾"
3"
K
A - B - C - 18 G COPPER
E⅛"-D3/16" BRASS ROD
F-¼" BRASS TUBING
L
1"
H
F

Figure 34

Cylinder Engine

Figure 34 is a steam-engine of the walking beam type. First we will make the wood parts. As seen from the top view of the drawing it measures ½ inch by 4 inches by 10½ inches. It will be better to use hard wood for the parts of this engine, either oak, maple, or birch being suitable. Square up your base to size, then mark and cut a piece lengthwise out of the center at one end 1 5/16 inches wide by 6 inches long. Then square up three pieces for cleats ½ inch by 1 inch by 4 inches and screw to the under side of the base as shown at H in drawing. It will be necessary to cut a bevel in the center of the middle cleat to allow clearance for the wheel. Make an upright ½ inch by 1¼ inches by 6 inches and round the top; see G. Make the walking beam out of quarter-inch wood as per dimensions at K. It is ⅞ inch wide, 3 inches from one end, and tapers to ½ inch at both ends, which are then rounded. There is a triangular brace to help support the upright ⅞ inch thick by 3 inches on the square sides and is fastened against the upright, as at J, with screw from the face and up through the base. There are two shaft supports made from ½-inch stock, as per dimensions at N. The top part of this is fastened with screws as shown, to firmly hold a small piece of ¼-inch tubing which acts as a bearing. The wheel is made from ⅞-inch wood 4 inches in diameter. Holes are bored through the wheel near the rim and equal distances apart and filled with hot lead to make it heavier. This completes the wooden parts.

Making the Cylinder

Obtain a piece of ¾-inch brass tubing for a cylinder; square both ends and solder to a piece of sheet brass 1½ inches by 1½ inches after boring holes for screws in the four corners (see F). Cut from sheet brass or copper three pieces as A, B, C and from 3/16-inch brass rod one piece similar to D. Thread one end, flatten other, and bend as per drawing. This is the crank shaft which goes through the wheel and rests on the

two bearings as shown in the upper drawing at K. The piston head can be made by using the cylinder as a mold and pouring in about three-quarters of an inch of hot lead, then forcing it out. Attach the piston rod so that it works freely like a hinge. The piston head should have a groove around the middle for packing as piston rings in an automobile engine, but this is not absolutely necessary if you get a nice fit otherwise.

The piston rod is made from 3/16-inch brass rod slightly flattened on both ends so that you can bore a small hole, one for

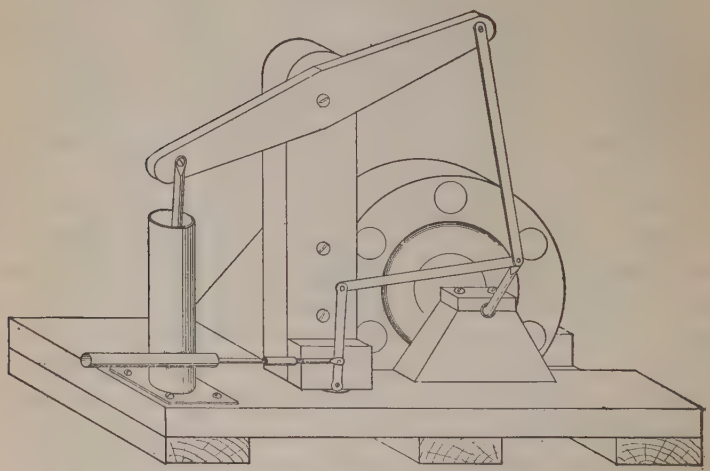
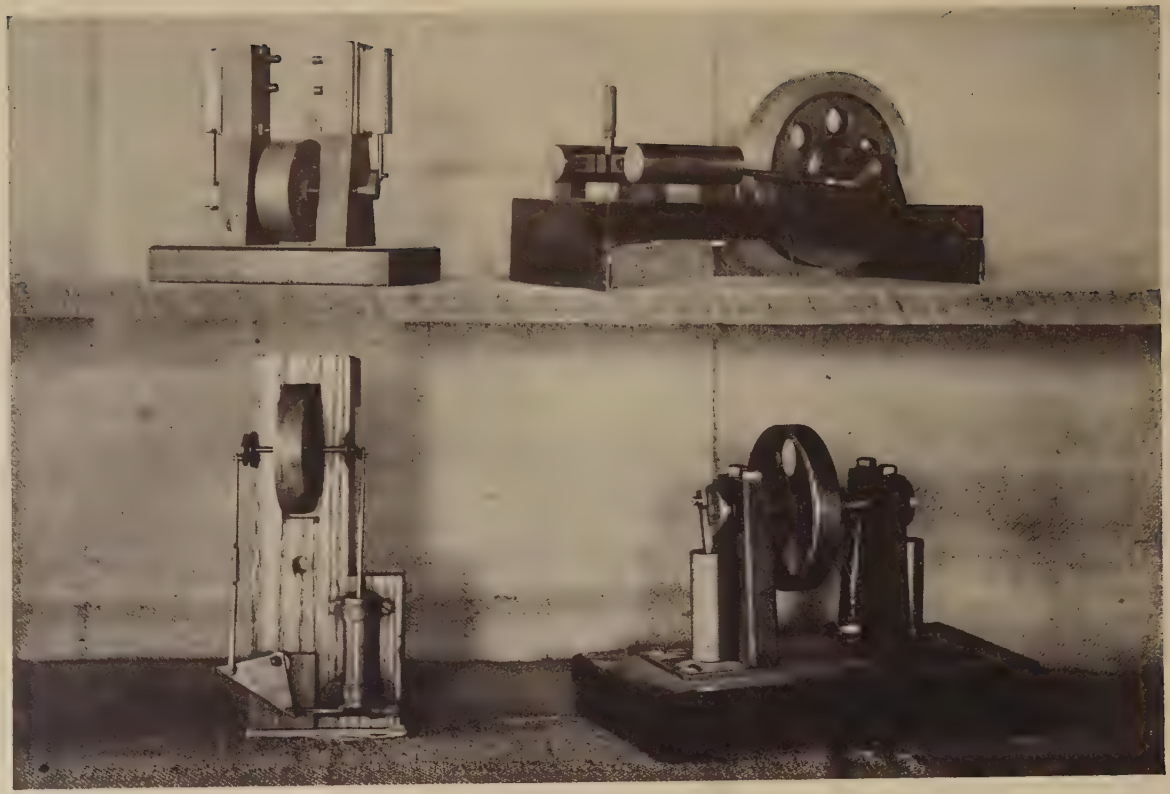


Figure 35

a screw to fasten it to the walking beam and the other to fasten to the piston head. The drawing at L shows methods of fastening piston rod to the piston head.

The valve at M is made from a piece of 1/4-inch pipe 3 inches long. A hole 1/8 inch in diameter is drilled 7/8 inch from one end and a corresponding hole drilled 1/2 inch up from the base of the cylinder and the two soldered together so that the holes meet. The valve rod is made from two pieces of 1/8-inch brass rod,—one being threaded at one end with a right thread and the other with a left thread at one end, the other end



TOY ENGINES

flattened slightly and drilled with about a No. 40 drill. These two pieces with the coupling O, which is a piece of 3/32-inch pipe, tapped right and left, should measure 3 inches long when joined. The valve is made from 1/4-inch rod and should be fastened to valve rod similar to the way the piston head and piston rod is fastened so that it will work freely like a hinge. The valve shown measures about 3/8 inch long. By the use of the coupling O, you can lengthen or shorten the valve rod in adjusting and timing your valve motion. In assembling remember all the joints are movable and should work freely but should not be too loose or wabbly.

Escutcheon pins cut off make good rivets for fastening A, B, C, and E together.

Assembling the Parts

It may help you in assembling to refer to Figure 35, which shows quite clearly how and where each part is attached. The steam may be supplied by a tea kettle with a hose connection to the intake at M.

Horizontal Type of Steam Engine

In Figure 36 we have the drawings of a horizontal type of steam engine. The base is made from hard wood 1 inch by 4 inches by 10 1/4 inches and cut away on the side of one end, and also near the center a piece is cut out to make room for the flywheel; see top view of drawing L. No cleats are needed, as the thickness and narrow width will prevent warping. The cylinder is made from a piece of brass tubing 3/4 inch inside diameter. The lower end is closed by partly filling with hot lead and an 1/8-inch hole drilled to receive steam from the valve K, which also has the same size hole, which should meet the one in the cylinder when soldered together. Two small metal pieces are made and a groove filed in top of each (see drawing A) to fit the cylinder and act as a bed. These are soldered fast to cylinder after first drilling hole through each to fit a screw to hold to the base. Fasten to base first, then after soldering valve to cylinder, solder cylinder to the pieces marked A. The fly-wheel in this engine is cast in lead.

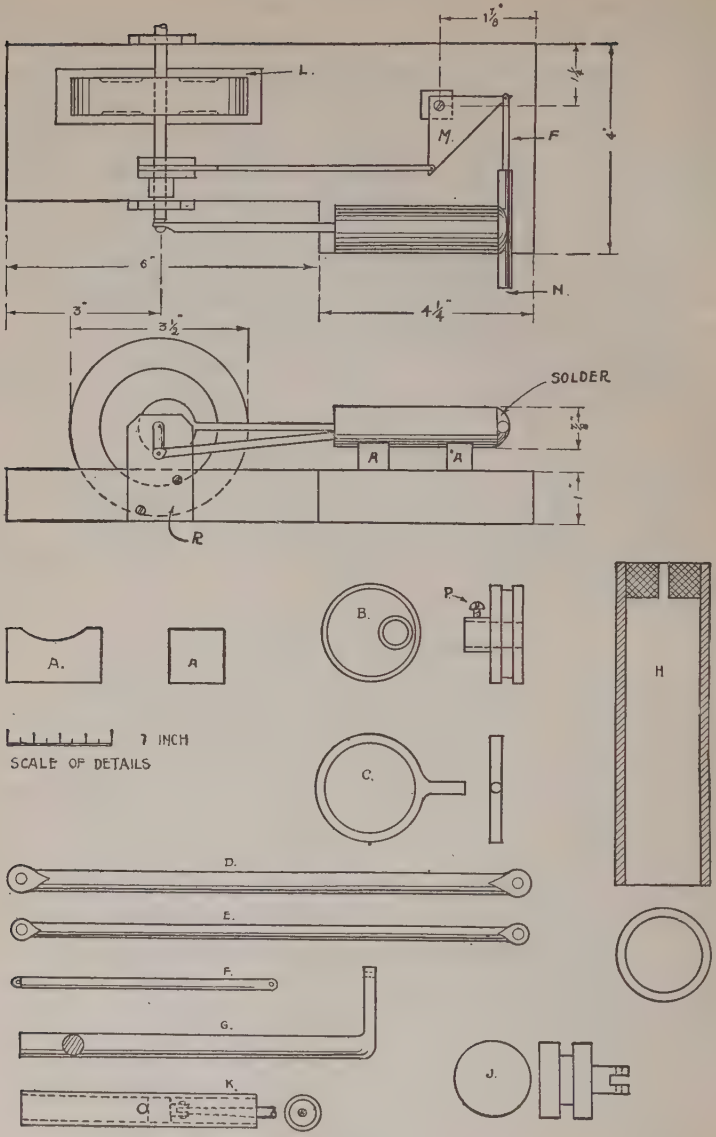

1⅛"
L.
M.
F
N.
6"
3"
3½"
4¼"
SOLDER
A
A
R
A.
A
B.
P
H
1 INCH
SCALE OF DETAILS
C.
D.
E.
F.
G.
K.
J.

Figure 36

Your Castings

Space will not allow us to go into details as a thorough description would be quite lengthy. Go to a near-by public library and get a book on casting and pattern making. You will have to make your pattern of wood first. Split it, as you cannot make the mold from it otherwise. Now dowel the two parts together; make yourself a flask from wood; get some molding-sand, read your reference carefully and try making a mold. When you have cast a good one, drill a hole in center to receive your crank shaft G, which is made from ¼-inch brass rod flattened and bent on one end as you will note in drawing G. D is also made of ¼-inch brass rod flattened and drilled on both ends. This is your piston-rod and is fastened so that it will work freely to your piston-head J, which is best made of iron turned to size on a machine lathe.

The eccentric B also should be made of iron on a lathe. This should have a small hole drilled in the shoulder and tapped to receive a set screw P, so that it can be firmly fastened to crank shaft. This eccentric, as you will notice from the drawing, is hung off center, which, when fastened firmly to shaft, transmits a slight motion to B, which, when fastened to eccentric ring C, fits in the groove of the eccentric and continues the motion by way of the sheet metal triangular piece M to the valve rod F. The valve is made similar to the piston-head except in size. This is fastened to the end of F and through its motion regulates the intake of steam which enters through hose connection at N. A small block of wood is put under one corner of M to raise it to the level of your valve and center of the crank-shaft. Two bearings are made from sheet brass about ⅛ inch thick with a hole drilled near top to receive crank-shaft freely and holes near the bottom for screws to fasten to side of base.

If you should have any trouble in making your engine run, look to your valve and see if you have it adjusted so that the valve-hole is clear to receive the steam pressure at the beginning of the outward stroke, and if it is cut off at the completion of the stroke and return of the piston head. Proper

adjusting at this vital part of the engine makes all the difference between a successful and an unsuccessful engine. This can be adjusted by lengthening or shortening the stroke of your piston valve or length of the rod itself. Your valve should be in position as shown at K, at about the middle of the outward stroke.

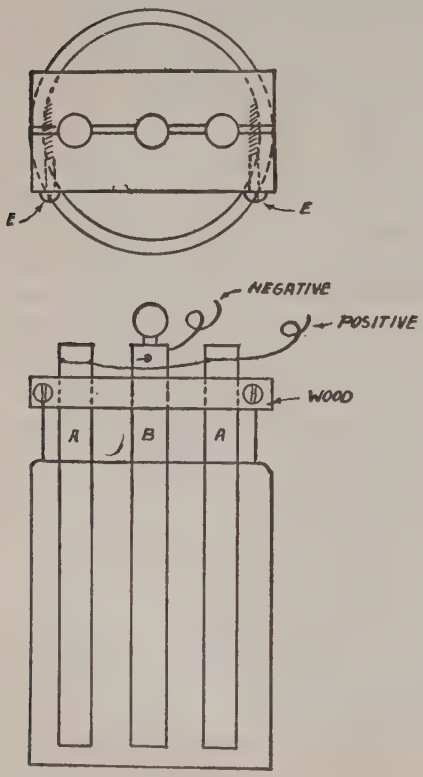


Figure 37

Electrical Apparatus

BY R. T. JOHNSTON

Here is shown a simple way in which to generate electricity. Obtain a pint fruit jar and fill it three-quarters full of a solution made from a pint of water and four ounces of salammoniac. Get two electric light carbons, remove the copper coating, file a groove around one end of each and connect with copper wire. Next buy a zinc pencil at any electrical supply house for five cents. Fasten them together with two pieces of wood, which are clamped together and bored to receive the carbons and pencil. Separate and plane down a little on the two edges that are to meet so that there will be a small space between them when you put in your carbons and zinc pencils, which will allow

you to clamp them tightly by tightening on your screws E. Parts marked A are carbon and B the zinc pencil. The chemical solution consumes or oxidizes the zinc and the inactive element, the carbon stick collects the electricity. The zinc is the negative pole and the carbon is known as the positive pole. This simple battery if properly connected will ring electric bells, buzzers, etc.

Key and Sounder

A very simple telegraph key and sounder is shown in Figure 38. The base is made of ½-inch wood about 3 inches by

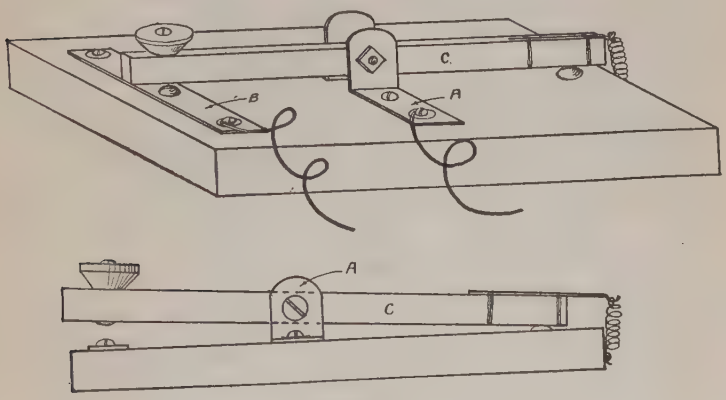


Figure 38

5 inches. Two sheet metal uprights are made, drilled and bent as at A, and a metal strip ½ inch wide and 2 inches long as at B. In the middle a small hole is drilled and a round head brass upholsterer tack is driven for the underside of the key to strike against to make a click. The bar C is made from a ⅜-inch by ⅜-inch piece of brass or iron, and a small hole drilled near the center for a small bolt to pass through in order to pivot it between the brass plates A. A hole drilled in the forward end will admit a brass screw that will hold a spool end to act as a finger-piece. This screw should be cut off and riveted at the underside. A short, strong spring is to be attached to the back of the base block and to the end of the key bar by means of a

hook which may be made from a steel wire nail flattened and bent on the end. The incoming wire is connected at B and the outgoing wire at A. When the key is at rest the circuit is open, when pressed down it is closed, and when pressed down or released it clicks at both movements.

Shocking Coil

Figure 39 shows a simple shocking coil, which is really only a small induction coil and consists of a core, a primary

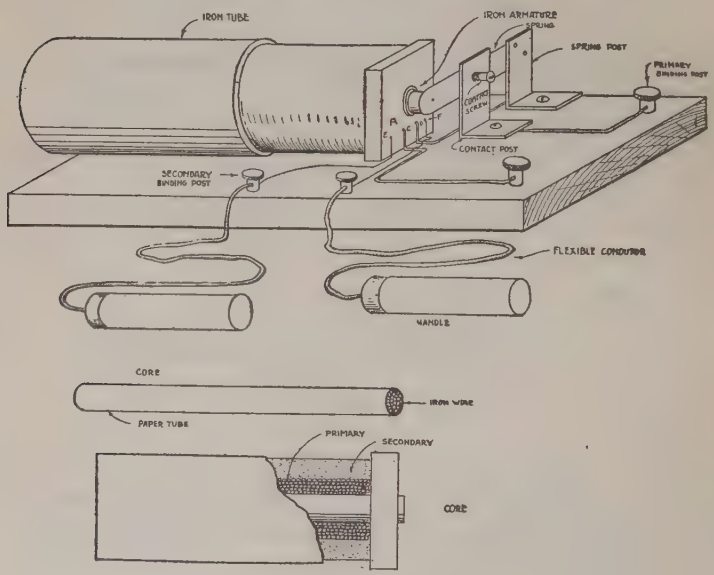


Figure 39

winding, a secondary winding, and an interrupter. The function of the shocking coil is to raise the voltage high enough to produce a shock. First roll up a piece of paper into a tube $\frac{5}{16}$ inch in diameter inside, $2\frac{1}{2}$ inches long—the outer edge of the paper being carefully glued so that it will not unroll. This tube is then filled with pieces of iron wire $2\frac{1}{2}$ inches long; No. 20 or 24 gauge will do. A square block 1 inch by 1

inch by $\frac{5}{16}$ inch is cut out of fiber or close-grained hard wood and a $\frac{3}{8}$-inch hole bored through the center. One end of the tube containing the core is glued into the hole in the block, projecting about $\frac{1}{8}$ inch. A second block pin the form of a circle $\frac{3}{4}$ of an inch in diameter and $\frac{1}{4}$ of an inch thick, having a $\frac{3}{8}$-inch hole through the center, is glued on the opposite end. After the glue has dried, drill four small holes, as shown at A. Next wind four layers of No. 22 gauge magnet wire smoothly and carefully over the core. The terminals are led out of the holes C and D. This primary winding is now covered with two or three layers of paper and then enough secondary wound on to bring the total diameter of the coil to about $\frac{11}{16}$ of an inch. The wire for the secondary should be any size between No. 30 and No. 36. It must be insulated wire, either cotton or silk. The secondary terminals are led out through the holes E and F. The drawing shows a simple way of making an interrupter. If a piece of silver is soldered to the spring, and to the contact point, it will give better results.

Connecting Up

One terminal of the primary is connected to the interrupter spring, and the other to the binding post. The contact post is also connected to a binding post. If a battery is connected to the two binding posts, the current will flow from one post through the coil to the interrupter spring, through the spring to the contact post, and thence back to the battery, making a complete circuit. As soon as the current flows, however, it produces magnetism, which draws the spring away from the contact and breaks the circuit, cutting off the magnetic pull. The spring flies back to the contact but is drawn forward again immediately and repeats the operation continuously at a high rate of speed. The secondary terminals are led out to two binding posts to which are connected two electrodes or handles by means of flexible wires. These electrodes are made from two pieces of tubing. The wires can be soldered or wedged in with a cork. If the handles are grasped while the battery is connected to the primary posts and the interrupter is in

operation a powerful shock will be felt. This shock may be regulated by slipping a piece of iron tubing about ⅞ of an inch inner diameter and 2 inches long on the coil. When the tube is all the way on, the shock is mild, and when off, the shock is strong. Intermediate strengths may be secured at stages between the two extremes.

Simple Motor

Figures 40 and 41 show the drawing of a simple and easily made electric motor which will run nicely on one dry battery.

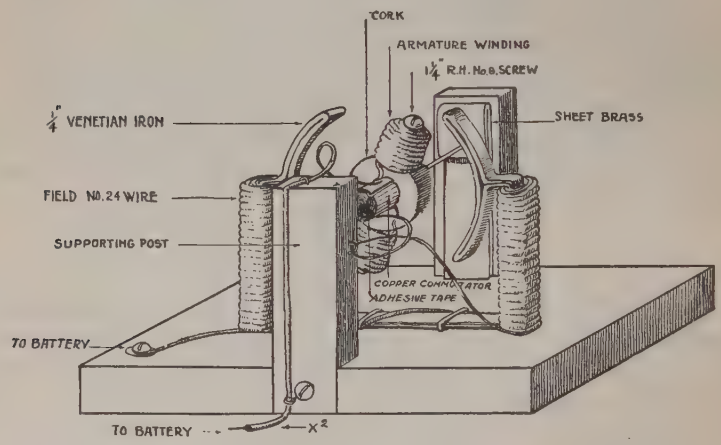


Figure 40

Make the base of soft wood ½ inch by 2½ inches by 5 inches and the two uprights ½ inch by ⅝ inch by 2½ inches. House the two uprights and fasten to the base with a screw. The field is made from ¼-inch Venetian iron. This is bent with the aid of a pair of pliers from one piece into the shape as shown in the drawing. It can be done more accurately by making a drawing or pattern and bending to correspond to same. The drawing, Figure 41, at W, is made to show the wiring rather than the exact form of the field, but the field can be made the same general shape with extended offset at

the beginning of the curve X as you will see by looking at the top drawing. Before bending the field it may be well to determine on the size of cork and screws used in making the armature as you will want the end of the screws in the armature to run as close as possible to the arc of the field, to obtain best results. As cork about an inch in diameter and two 1¼-inch R.-H. No. 8 screws screwed in from opposite sides will give a diameter of about 2¾ inches; the arc formed in bending the Venetian iron for the field should be slightly

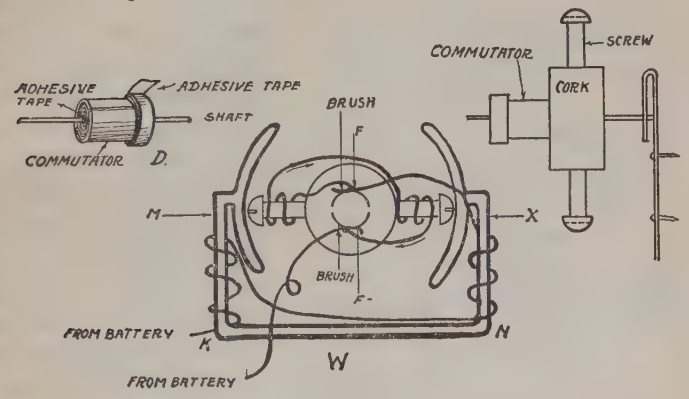


Figure 41

greater than this. A hatpin makes a good shaft, which is hung in bearings made from sheet brass or tin, bent over near the top and drilled for shaft. The commutator is made from about No. 26 sheet copper. Bend a small piece around a quarter-inch rod and cut at opposite side from where the edges meet after bending, then you will have two curved pieces just alike. These pieces may be better made from ¼-inch copper tubing. Now wind adhesive tape around your hatpin shaft about one-half inch from one end until you have thickness a little greater than the inside diameter of your two pieces of copper. Fit these pieces which form the commutator on the adhesive tape already wound on the hatpin, being careful that the edges of copper do not touch each other, and hold in place

by wrapping a narrow strip of adhesive tape over one end, as shown in drawing D. You can now wind four turns of No. 30 wire around the screws. (Note armature winding, also direction of wire in drawing W, Figure 41.)

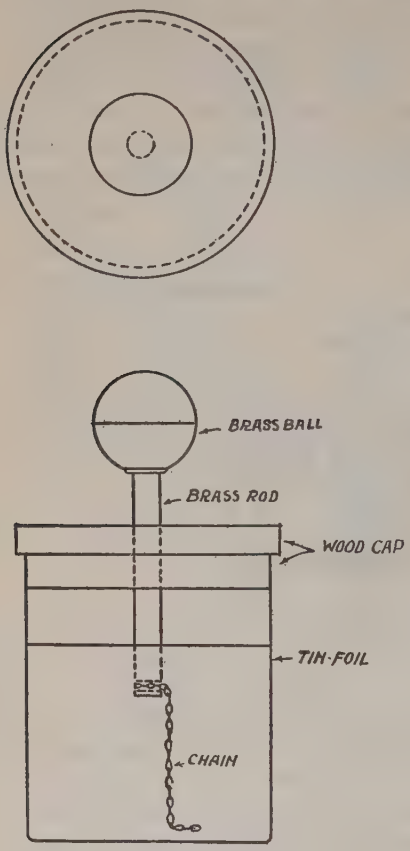


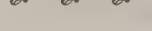
Figure 42

The opposite ends are soldered on the opposite sides of the commutator, F and F. A small alcohol lamp and blow-tube will be necessary for this operation, as soldering iron is too clumsy. It will be necessary to poke the shaft through the cork armature so that it will be in position before soldering. Four layers of wire are wound on the upright part of the field. Leave enough end to act as a brush from one side and to connect to battery wire on the other end, as shown at W, Figure 41. Also note direction of wiring. Begin at K, go to M, and back to K, then repeat, cross over to N and wind up and back twice, leaving end to connect with the commutator acting as one of the brushes. The other brush is from the battery, as shown at X-2. The field can be fastened to the base with flat-head staples. Be sure your armature barely clears the arc formed by the Venetian iron field.

Leyden Jar

The Leyden jar is made with a glass battery jar, tinfoil, brass rods and a small piece of brass chain.

Clean the battery jar and be sure it is dry, then give it a coat of shellac, inside and out. Now cover with tinfoil set with shellac, both the inside and outside of jar, two-thirds of the way up, also the bottom, inside and outside. Make a cork for top of jar by cutting two circular pieces of wood, each ½ inch thick, the inner one to fit snugly within the jar, and the other to lap over the edges ¼ inch all around. Fasten these pieces together with glue. Make a small hole in the middle of this cap and pass a quarter-inch rod through it, leaving several inches above and below the cap. To the top solder a brass ball and to the bottom fasten a small piece of chain so that several of the links rest on the tinfoil at the bottom of the jar. To charge jar use the Wimshurst Electric Machine. Connect a copper wire between one of the overhead balls on the machine and the ball at the top of the rod in the cap of the jar. Before operating the machine, place jar on glass-legged stool; by operating the machine the jar is charged.



A Derrick

BY GRACE VINCENT

Most boys are wide awake and interested in whatever is going on around them. Wherever there are workmen you will always see a group of such boys watching intently, and asking questions.

When there is heavy lifting to be done and materials shifted, there must be some sort of machinery to do it. A derrick is used for that purpose. Any boy with a mechanical bent will like to make the one shown in Figure 43. This toy has the three motions used in the real thing. The mast and boom will turn, the boom and the bucket can be raised and lowered.

The following are the necessary pieces needed for making the above. The uprights, A and B, are ½ by 1⅛ by 28 inches. These are separated and fastened together at the top and bot-

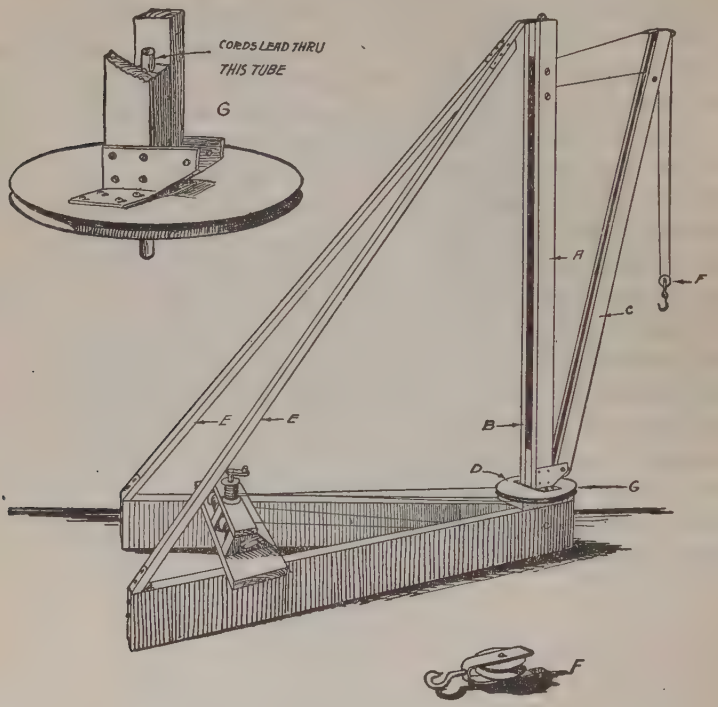


Figure 43

tom by pieces of wood ½ by 1⅛ by 1½ inches, which leaves a space for pulleys.

The boom C is two pieces, ½ by ¾ by 28 inches, separated and fastened together with pieces ½ by ¾ by 1½ inches.

The collar D is made of two pieces of ½-inch wood, 6 inches in diameter. In one of these pieces a hole is cut just large enough to take in the mast. Then the two circles are nailed together to form a pulley. Bore holes for pulleys in mast and boom with a 5/32-inch gimlet-bit. Put in pulleys, using a 3/16 x 2-inch stove bolt, as shown in the drawing

Attach the mast to the boom at the base with a small piece of No. 12 brass, as at G, with a $\frac{3}{16}$ x 2-inch stove bolt, and screw to the collar.

The base is made of two pieces of $\frac{7}{8}$ by 2 by 18 inches. These are placed on edge so that there will be a space large

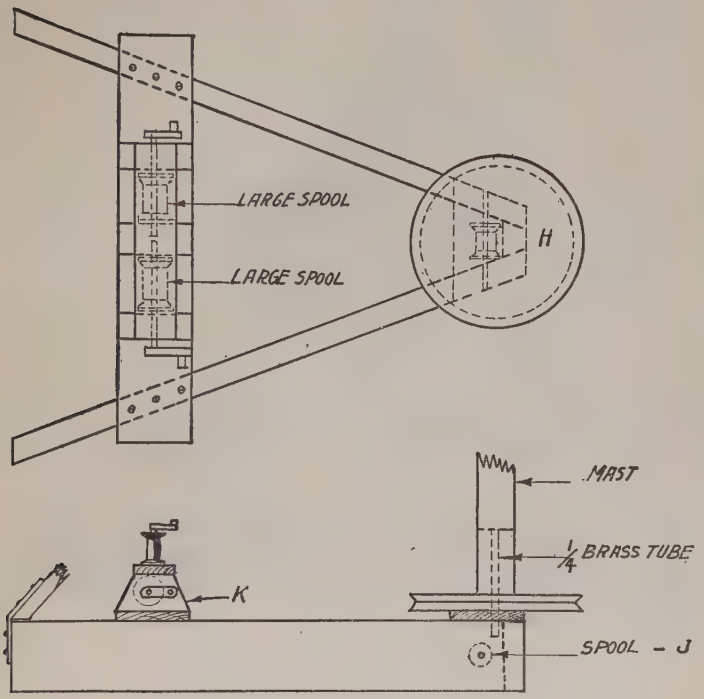


Figure 44

enough in the front to allow an ordinary spool to turn, as Figure 44-H. The spread at the back is about 15 inches. On the front end nail a ½-inch piece about 6 inches square and cut off to fit the slant. Bore a hole through this piece with a $\frac{4}{16}$-inch auger-bit, and insert a piece of tubing, which also goes through the collar into the mast at G. This allows the collar to turn. Bore two holes in the baseboards so that tubing

will be just in front of them. Through these insert a dowel rod which fits tightly; put the spool through at J, and it acts as a pulley.

The braces are ⅝ by ⅝ by 35 inches (length may vary). They are fastened to the mast and base with a strip of copper screwed at the top so the mast may move easily.

Ask your mother for two basting thread spools and an ordinary one. These will be your drums. Cut three pieces of wood ⅞ by 2¼ by 3 inches. Taper like K. Put a dowel rod through your large spools, tight enough so that the spools will not revolve. Leave enough out for handles. Bore holes in your pieces with a bit one size larger than the dowels used. Put your spools in place, one each side of the ⅞-inch pieces. Cut a board to hold the spools, ½ by 6 by 15 inches, and place directly back of the mast so that the middle piece holding the spool will be in line with the mast. Screw the piece to the 6 by 15-inch board, then fasten to the base 4 inches from the back, as in Figure 44. On top of the spools nail a piece of ½-inch wood, as long and wide as will cover spools. In the middle upright bore a ¼-inch hole and insert a dowel rod. Glue tightly so spool will revolve. Make handles for each spool.

String up the derrick so that the small spool will turn the collar—one raise and lower the boom and the other the bucket.

Any bright boy can rig up a brake to keep the spools from turning.

Bird Houses

BY GRACE VINCENT

What boy has not been interested in watching some bird build its nest, feed its young, and help them to learn to fly? If the birds want to live with us we should encourage them by letting them alone. Let them be free from fear. Try to keep all cats away from them; put out a dish large enough for

them to take a bath in. Plant trees and bushes about the place for them to live in.

For some kinds of birds we can build houses. Although birds may not appreciate architecture, it is well to make the houses neat, and to take pains to have the proportions correct. The birds which build in houses are bluebirds, wrens,

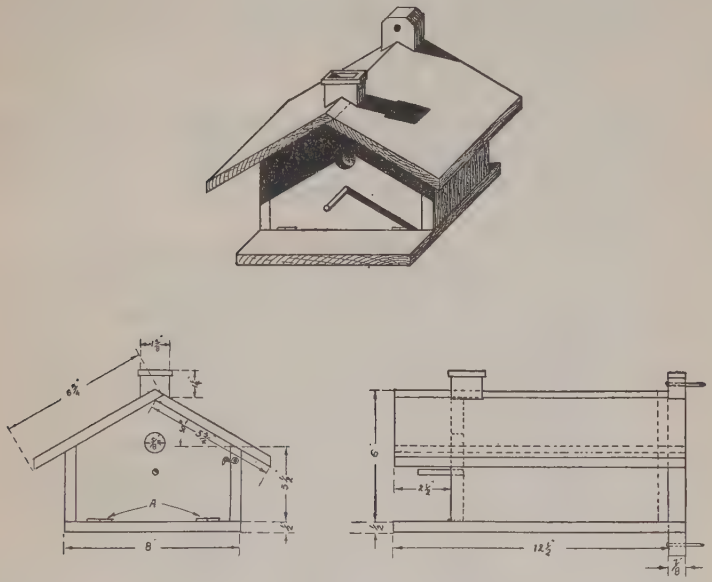


Figure 45

swallows, martins, red-headed woodpeckers, golden-fronted woodpeckers, hairy woodpeckers, downy woodpeckers, flickers, chickadees, titmice, nuthatches, dippers, house finches, crested flycatchers, barn owls, screech owls, saw-whet owls, sparrow hawks, and wood ducks. The table given on page 540 of Volume 5 of the TREASURY will tell you the size of a house suitable for a particular bird. Most boys say when they see the size of the hole made for the wren, for instance, "Oh, no bird could get through that," but if it is made any larger the wren will avoid it. The size is most important. It

should be just large enough to admit the bird. A larger opening not only looks bad, but it gives a chance for cats and other enemies. Only one opening should be provided for each house or compartment. A perch or doorstep should be provided just below each door.* It is here that the birds often stop to arrange their toilets, and the male bird may tell all the news he has gathered while his wife is cleaning house. The houses should be placed on poles or on buildings in somewhat secluded places. Martins and tree-swallows like to build their nests about 15 feet above the ground. Newly made and freshly painted houses are avoided.

In the last few years there have been bird-house contests all over the country, where prizes have been given for the best or the most built by any one boy. Many original ones have been turned out.

The house shown in Figure 45 is very simple to make. Make the baseboard of ½-inch wood, 8 by 12½ inches. The front and back are ½ by 7 by 6 inches. Find the center of the top of these pieces, measure up the height of the side pieces 3½ inches. Connect with a slanting line, and saw off. Make the sides 10 inches long. Before nailing together bore a hole with a 1-inch auger-bit in the center of the front and 3¾ inches from the base. Put in a ¼-inch dowel below the opening for a perch. Nail the sides to the ends, and put on the floor. The house is now ready for the roof. This is two pieces. One is ½ by 6¼ by 13⅜ inches. The other is ½ inch wider to allow for lapping. Fasten the narrow one first with two brads, driven partly in. Get the proper bevel; take off and plane. Nail on permanently. Do the same with the other side. The front of the house may be hinged, as shown in drawing A-45, if one wishes to clean out the house.

The chimney may be put on according to the drawing or omitted. It is made of a block, and to fit to the roof must be cut out the same angle as the roof. The piece on the back is fitted in flush with the back of the house, as seen by drawing.

* Where English sparrows are found do not put a perch in front of the door, as it is not necessary for the use of the tenants, and permits the sparrows to annoy them.—THE EDITORS.

A Sand-Mill

BY GRACE VINCENT

This little toy is used something like a water-wheel except it is run by sand instead of water, the sand being poured into the box on the top.

The base is made of two pieces of ⅞-inch wood, 3 by 14 inches, slanting toward the top. These are connected with

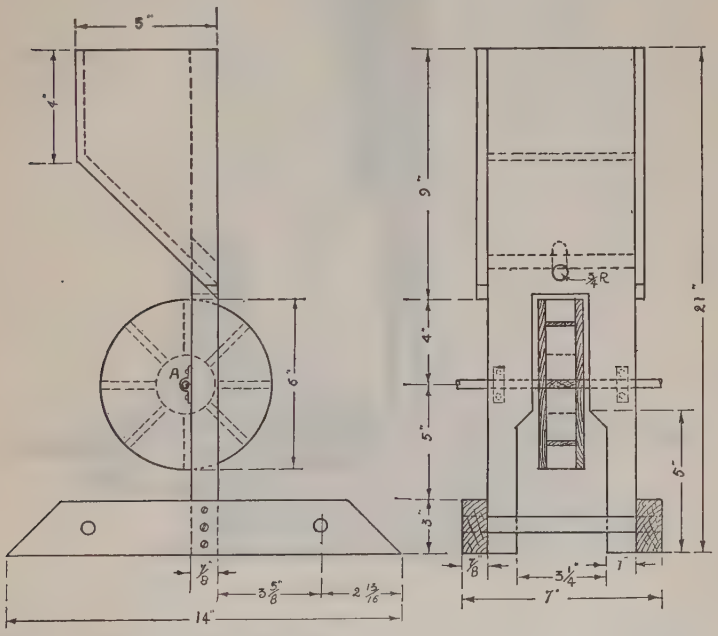


Figure 46

dowel rods of wood, ⅞ by ⅞ by 7 inches. The upright piece which holds the box is ⅞ by 5¼ by 21 inches.

About 9 inches from the top cut a slot 1¾ inches wide for 5 inches, and 3¼ inches the rest of the way. This is the opening for the wheel. This upright is screwed to the inside of the base in the middle.

The box into which the sand is poured is of ¼-inch wood,

The sides are 5 inches wide and 9 inches long in the front, and 5¼ inches in the back. (See the picture.) Nail the sides to the upright piece at the top, then put on the back. In the

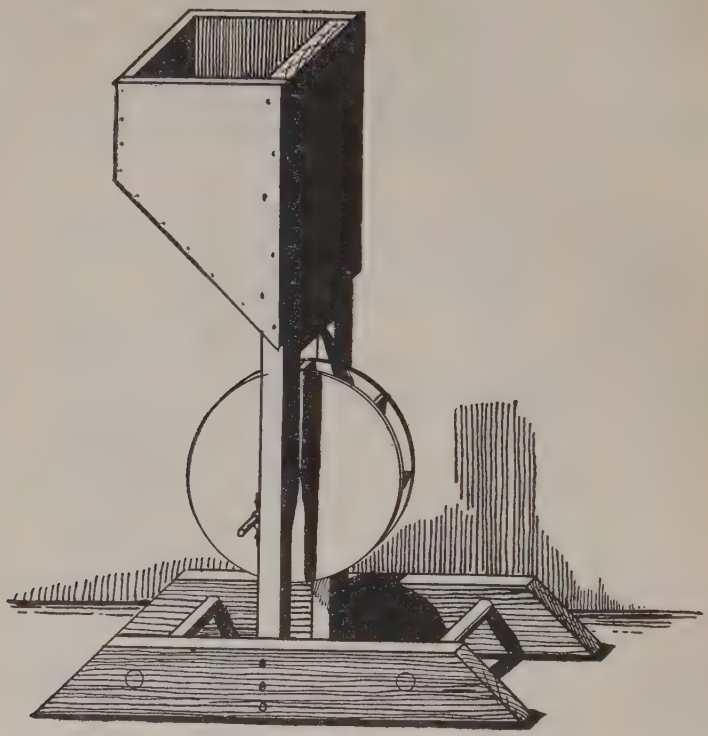


Figure 47

upright about 7½ inches from the top, bore a slanting hole with a $^{1}2/_{16}$-inch auger-bit, where the sand runs out.

The wheel is made of two pieces of ¼-inch wood 6 inches in diameter. These are separated by a piece of ¾ by 3-inch diameter, which is nailed to the 6-inch circle. Divide the 6-inch circle into eight equal parts, and on each of these and against the 3-inch piece nail a piece of wood ¼ by ¾ by 1½ inches; then nail on other large circle.

Bore a hole through the center of the wheel with a $^{4}/_{16}$-inch

auger-bit, and put through ¼-inch rod, which is held firmly to wheel. Make two small pieces of copper about ½ by 1½ inches, and bend them as shown in drawing at A.

Different things may be attached to the rod, as a small circle with a clown or monkey nailed to it. As the sand pours into the wheel it revolves and turns whatever is on the rod.

Bibliography

The boys' departments in the public libraries are usually well stocked with this "What to Do" and "What to Make" type of book. Ask your librarian what she has or what she thinks would be valuable to have, or whether they will get some of the books. A very convenient addition to your own laboratory would be some kind of bookcase or shelf to hold all the books, catalogues, and pamphlets which you are planning to have for your own.

HOW TO MAKE A WIRELESS OUTFIT*

By A. FREDERICK COLLINS

EVERY Woodcrafter ought to be able to send and receive messages over long distances by every known means including smoke signals, wig-wagging, heliography, and wireless, and the last named method is to my way of thinking the most useful and interesting.

There are three parts to every wireless set, and these are (1) an aërial wire system, (2) a sending apparatus, and (3) a receiving apparatus; and you can buy all of it ready to put up, or if you like to use tools you can make all of the parts yourself, except the head telephone receivers, as thousands of other wireless fellows have done before you.

The Aërial Wire System

The aërial wire system, or just aërial, as it is called for short, is formed of two or three No. 14 aluminum or stranded copper wires stretched as high above the ground as you can get them. These wires must be insulated from the poles, or whatever they are fastened to, and to do this six porcelain insulators, and two strain insulators, are needed. Each end of each wire, which should not be less than thirty feet long, is fastened to a porcelain insulator and the latter is in turn fastened with a bit of wire to a spreader, that is, a strip of wood one inch thick, three inches wide, and four feet long. Each spreader is then fastened to a strain insulator when the aërial is hoisted and fixed to the supports; and don't forget that the higher the aërial and the longer the wires the greater the distance to which messages can be sent and received.

*Used by permission of the Woodcraft League, New York City.

LIGHTHOUSE AND WIRELESS STATION AT OLD POINT COMFORT.

The Ground

Next in importance to a high, long, and well-insulated aërial is the *ground,* and there are several ways of getting a pretty good one. The first way is to use the gas or water pipes and to solder a No. 6 bare copper wire to it, or fasten it on with a ground clamp; another way is to drive a piece of iron pipe into the ground deep enough to reach moist earth, but the best way of all is to solder a copper wire to a sheet of copper, or zinc, three feet wide and four feet long and bury it deep into the moist earth.

To make an aërial a safety device rather than a source of danger from lightning it should be grounded, when you are not sending or receiving, through an aërial switch. This switch is screwed to the outside of your operating room near the window where the aërial and ground wires go through to the inside.

The Sending Apparatus

To send messages you will need the following pieces of apparatus: (1) an induction coil, or better, a transformer, (2) a telegraph key, (3) a spark-gap, (4) a battery, or if your house is wired you can tap the circuit and get your current from that source, (5) a tuning coil, and (6) a condenser.

The purpose of an induction coil is to change the direct current of a battery or lighting circuit into high pressure alternating currents. A transformer is used where alternating current only can be had. A transformer is better and cheaper than an induction coil, having the same sending range and should be used if you can get alternating current to work it with.

The purpose of the telegraph key is to break up the battery or lighting current which energizes the primary coil of the induction coil, or the transformer, into dots and dashes representing the letters of the alphabet, or International Morse Code as it is called. The key is connected in circuit with the primary of the coil and the battery or other source of current.

From the battery or power circuit the power to operate

your induction coil or transformer is had. If current from a lighting circuit is used a variable resistance must be connected in the primary circuit to cut down the current to the amount required.

The spark-gap is simply a pair of brass rods fitted with brass balls and insulated handles which slide through a pair of brass standards fixed to a marble or other insulating base. The spark-gap is connected to the terminals, that is, the ends of the wires of the secondary coil.

The tuning coil of the sending apparatus is simply a coil of heavy brass or copper wire one-eighth or one-fourth inch in diameter, wound in a helix around a wooden frame, and it is used to enable the operator to give the electric waves sent out by the aërial a certain length in order to conform to the Government regulations. The tuning coil is connected in circuit with the spark-gap and the condenser, and the aërial and ground wires are connected to it as we shall presently see.

The high tension condenser can be either a battery of Leyden jars or it can be made of a number of sheets of glass covered with tinfoil. The sending condenser must be proportioned to the size of the tuning coil and the larger it is, within certain limits, the shorter and thicker the spark at the gap will be and the more effective the electric waves that are sent out by the aërial.

Connecting Up the Transmitter

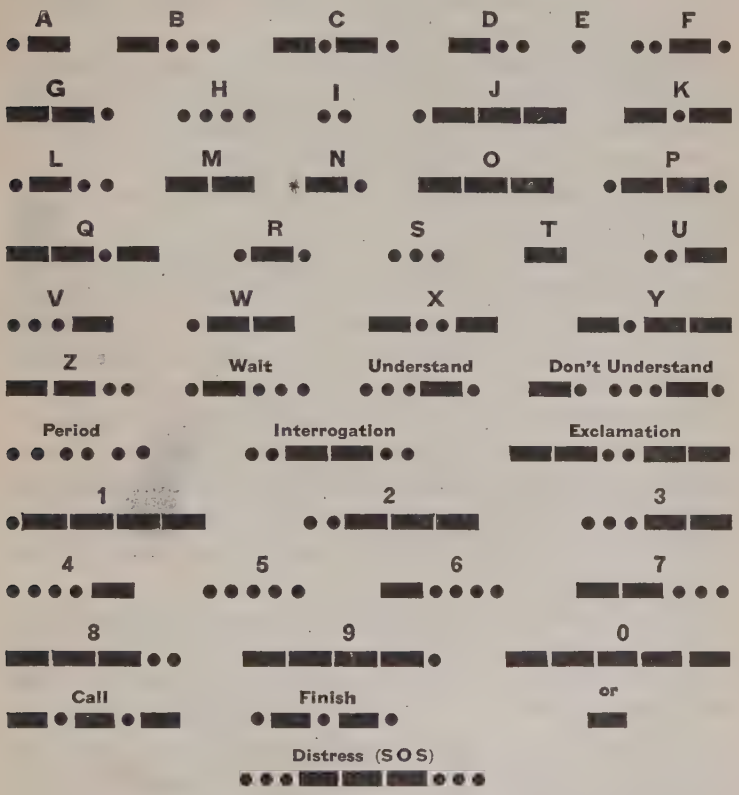
When you have made or bought all of these pieces of apparatus, connect them up with No. 14 copper wire, which should be insulated, that is the primary of the induction coil, or transformer; the battery, or other source of current, and the key are connected in series, as it is called.

Next the spark-gap, the condenser, and the tuning coil are connected in series, and then the end of the aërial wire is connected with the top binding post of the tuning coil, while one of the clips of the tuning coil and the ground wire are connected together.

Before sending wireless telegraph messages with this or

any other set you must have a Government license and the way to obtain a license is fully explained in a pamphlet entitled "Radio Communication Laws of the United States" and which you can get by sending fifteen cents to the Superintendent of Documents, Government Printing Office, Washington, D. C.

The following code is used throughout the world on land and sea for sending wireless telegraph messages and for this reason it is called the International Morse Code.



It is a little different from the ordinary Morse Code, but it is easier to learn than the latter. You must be able to send at least five words per minute before you can obtain a Government license.

The Receiving Apparatus

A wireless receiver is easily made, that is, all except the head telephone receiver, or you can buy the whole receiving apparatus ready made. Many boys have only receiving stations, for a license is not required to listen in and wherever you live you are almost sure to be within signaling range of some other station. A receiver consists of (1) a crystal detector, (2) a tuning coil, (3) a variable condenser, and (4) a pair of head telephone receivers.

A crystal detector in its simplest form is merely phosphor-bronze, or a German silver point, pressing gently on a crystal of silicon or of iron pyrites. A metal framework screwed to a hard rubber base is used to hold the crystal in place and to provide the means for obtaining the right pressure of the point on the crystal.

The tuning coil is made by winding a single layer of No. 20 or 22 insulated copper wire on a cylinder of wood, glass, or other material; the insulation of the wire is scraped off in two parallel lines the length of the coil and two springs sliding on brass rods make contact with the turns of wire.

The tuner, as it is sometimes called, is used to tune in any station, that is, to adjust the aërial wire and circuits of your receiver to the wave length sent out by the station which you want to listen to. It is also useful to tune out interfering signals and to make the received signals ring clear and loud in the receiver.

The best kind of a receiving condenser is of the variable type. It is made of a number of thin sheet brass semi-circles, called leaves, half of which are fixed in position and the other half, which alternate with the fixed leaves, are made movable. The movable leaves can be turned by means of a knob and very sharp tuning can be obtained when it is used in connection with the tuning coil.

To receive over long distances a good pair of head telephone receivers must be used. A receiver wound to 500 ohms resistance is good enough to receive over distances of 100 miles or so, but for longer distances each receiver should be

wound to 1,000 ohms resistance. In buying your receiver be sure that it is wound with copper wire and not German silver wire, as a receiver wound with the last-named kind of wire is not nearly as sensitive as one wound with the former kind of wire, though the resistance of both may be the same.

Connecting Up the Receiver

Having all the parts of the receiver the next thing to do is to hook them up, that is, connect them together. If you intend to receive only, then connect one of the binding posts of the tuning coil with the aërial wire and connect the ground wire with one of the sliding contacts.

The other sliding contact is joined to one of the binding posts of the variable condenser and the other post of the condenser leads to one of the posts of the detector, while the other post of the detector is connected with the ground wire. The telephone receiver is shunted around the detector, when the instrument is ready to receive messages.

The Aërial Switch

If you are going to send as well as to receive you will have to use an aërial switch, that is, a specially made switch. When the lever of the switch is up the sending apparatus is cut out and the receiver is connected to the aërial and ground wires. But when the switch is down the receiver is disconnected and the sending apparatus is cut in.

Operation of the Apparatus

Suppose now that the aërial switch is in the down position and that you are sending a message. When you press down the button of the telegraph key it closes the battery, or lighting circuit, and the current flows through the primary coil of the induction coil, or transformer.

If it is a direct current the vibrator of the induction coil changes it into an interrupted current, and this sets up high

pressure alternating currents in the secondary of the coil; or if it is an alternating current to begin with, then the transformer sets up high pressure alternating currents in the secondary coil.

In either case these high pressure alternating currents charge the condenser and this in turn discharges through the spark-gap and makes a continuous stream of bright, crackling sparks. Now the discharge of a condenser through the spark-gap sets up high tension currents of very high frequency, or electric oscillations as they are called, and these currents surge through the tuning coil, the aërial, and ground wires at the rate of a million times a second, more or less.

These electric oscillations running forth and back along the aërial wire are changed into electric waves, just as an ordinary electric current flowing in a wire is changed into magnetic lines of force, and these electric waves push out into space in every direction exactly as the vibrations of a bell send forth sound waves, but with this difference, where a sound wave will travel only a few miles at most, an electric wave will travel hundreds of miles, and, again, where a sound wave travels 1,086 feet a second, an electric wave travels 186,500 miles a second, which is the speed of light.

Since electric waves from a sending aërial are radiated into space in every direction, they will, of course, strike any aërial wire wherever it may be located if it is not too far away.

And when the electric waves strike an aërial connected with a receiver they set up in the aërial wire electric oscillations having exactly the same number of vibrations per second as the electric oscillations which sent out the waves. For this reason the receiving circuits must be tuned to the sending circuits.

The high frequency oscillations set up in the aërial wires by the incoming electric waves will flow down the aërial to the tuning coil, thence through the condenser and the detector, on to the ground and back again, and it is the purpose of the detector to act as a sort of valve to change the rapid oscillations into an interrupted direct current.

This latter kind of a current energizes the telephone re-

ceiver where the former kind of current will not affect it, with the result that buzzing sounds are made which are read by the operator—that is, a short buzz is read as a dot and a long buzz as a dash—and in this way messages in the International Code are received.

HOW TO TAKE PHOTOGRAPHS *

By C. H. CLAUDY

The Camera

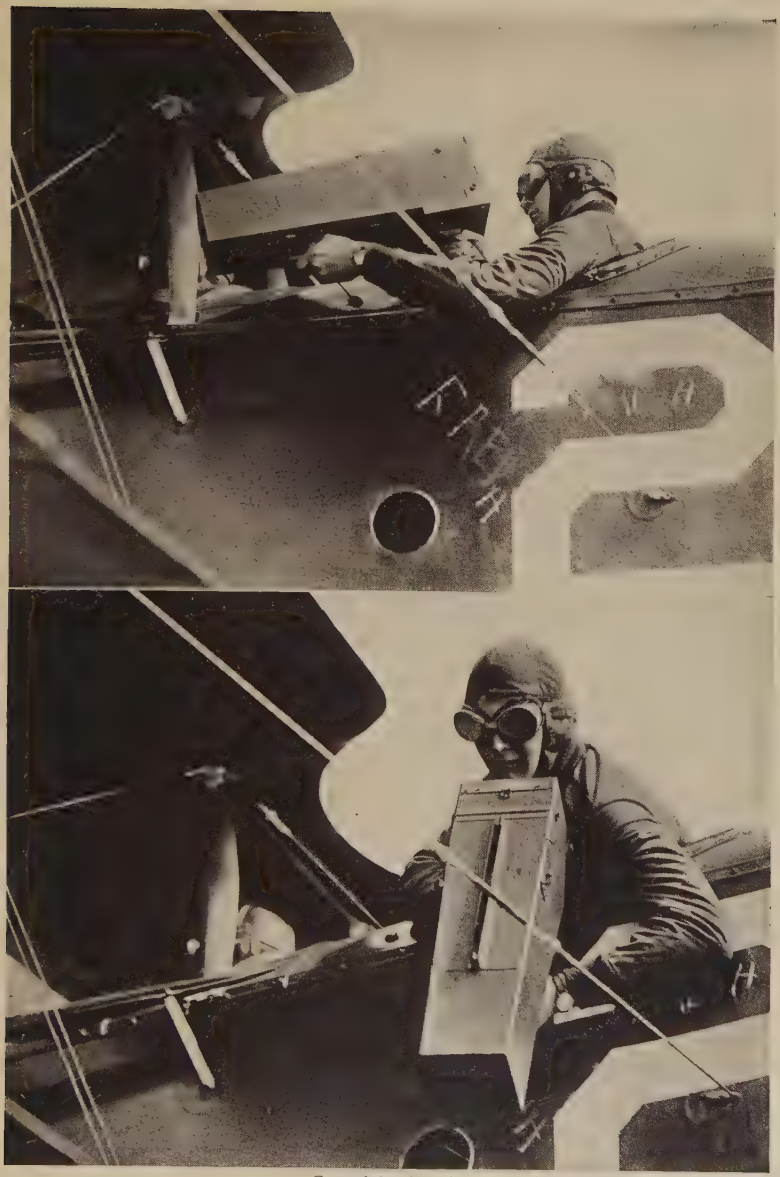
A CAMERA, of any kind, is nothing more nor less than a little chamber from which all light can be excluded. The only light ever admitted in picture-making comes through one or more pieces of glass called the lens. There is a means, both for letting in the light and for keeping it out of the lens and the dark little chamber, called a shutter. At the opposite end of the camera from the lens is some means for holding a piece of sensitive material—material sensitive in a chemical way to the action of light.

When you expose your skin to bright sunlight for any length of time, it first burns red, then tans. Sunlight turns green apples red. Sunlight, too much of it, turns green grass brown. All this is chemical action, due to the action of sunlight. The sensitive material in the camera is a million times, and more, sensitive to light than skin or fruit. It is so sensitive that the least touch of white sunlight, even for a tiny fraction of a second, affects it. The effect does not show to the eye, but is made visible when the sensitive material is submitted to the action of certain chemicals, of which more later.

The sensitive material is in one of two forms. It is either coated upon glass, when it is called a dry plate, or it is coated upon celluloid, when it is called film. For the beginner who wants his camera for recreation only, in its simplest form, the films have the most recommendations.

These are as follows: They are very light. A number can

* From "The First Book of Photography," by C. H. Claudy. Published by McBride, Nast and Company, New York. Used by permission of the publishers.



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PHOTOGRAPHING ENEMY TRENCHES FROM THE CLOUDS

Showing the simple yet efficient manner in which snaps are taken with the graflex camera.

be carried in the pocket. They can be put into the camera in daylight.

If you are wise, you will buy an inexpensive film camera, to start with, either of the box type, and technically known as "fixed focus," or of the folding variety which slips in the pocket. "Fixed focus" is a term meaning that the lens is always stationary with relation to the film or plate, and requires no focusing at any time.

For scientific and impossible-to-get-over reasons, all fixed focus cameras are for comparatively small-sized plates or films. They are rarely 4 by 5 inches, more commonly 3½ by 3½, which is a good size to begin with. The smaller size has the added advantage of making the supplies, the rolls of films, cost less.

The First Step

But whether you buy a fixed focus box camera or a folding pocket Kodak, the first thing you should do is to sit down at your leisure and examine the thing carefully. If you have a box Kodak, in front, in the center, you will find a hole. Behind something in this hole is the lens. The something is the shutter. Not knowing the particular variety you have bought, I cannot tell you exactly how to operate your shutter, but it is probably by means of a little projecting lever on top or at the side of the box camera, or a little lever or a rubber bulb in the folding Kodak. Find out from the instruction book, and work it. Work it a lot. See just how much muscular force you need to press it to make the shutter wink back and forth across the lens. Practice doing it with the camera held about in the pit of the stomach by the left hand, and try to hold it steady. It is very essential for the success of any picture taken when the camera is held in the hand, that it, the camera, be held steadily, and with as little jar and shake as possible.

The next thing is to learn how to put the roll of film in the camera. Right here spoil a roll of film to know just how it is made. First break the seal of paper which surrounds it. Then unwind it completely. This unwinding will utterly

ruin the film for picture purposes, but it will save some future exposures by your knowing what it is like. You will note that the film, a milky, yellowish strip of celluloid, is shiny on one side and dull on the other. The shiny side is next the protecting strip of red and black paper which extends beyond it on either end. You will see that only the first end is fastened down and that the last end is loose, but provided with a paster ready to fasten. You will note numbers in black on the back of the protecting paper, and before the first of these is a little black hand. Now roll up the film again, and insert in the camera according to the directions for the particular style of instrument you have. As you know that when unrolled the spool presents a film on one side and a strip of paper on the other, and you presumably have guessed that it is the film and not the paper on which the picture is made, you can appreciate the importance of getting the spool into the camera right side up, or so that the film will be turned inward and toward the lens.

The Numbers

The purpose of these numbers is to tell you how far to wind the film between each picture. After one picture is made, another picture must not be made on that same strip of film, otherwise there would be what is called a double exposure, and the result would be only blur and confusion. So the film is wound off its original spool on to the other, or take-up spool, and the amount of winding to be done is shown by the periodical appearance of the little black numbers opposite the little ruby window. Also, they indicate the number of pictures already made, and consequently the number which can yet be made upon the spool of film.

Care of Film

In making pictures in the field, after the last number has been wound past the window, keep on turning the key until it will turn no more, or until enough turns have been made to insure all the protecting paper having been wound off the

original spool and on to the take-up spool. Then, and not until then—except in the trials at home with the spoiled film—remove the back of the camera, or open the door, or whatever it is you do on your particular camera to get to the spools, and take out the wound-up film. On the end of the protecting paper you will find a piece of gummed paper. Use this to stick the flap of the roll to itself, so it will not unwind, and put the whole away from the light, in a pocket or box.

You must not put your films in the camera in bright sunlight; get in the shade; in a house is better. You must not let spools of film, exposed or fresh, lie around uncovered. Roll film is carefully made and well protected against ordinary handling, but it isn't fool-proof, and light has a way of leaking and seeping in and around where it is least expected. If you are careful in loading and unloading, if you take care and give the film a chance, there is no reason why you shouldn't make just as good pictures within the capabilities of your instrument as any one else with larger and finer machines.

Exposure

The problem which confronts the novice in photography at the very beginning is that of, "What exposure shall I give?" Among the factors on the proper combination of which correct exposure depends, may be mentioned the following: time of year, time of day, speed of film, speed of shutter, speed of lens (otherwise its "relative opening"), color of subject, distance of subject from the camera, kind and color of light, state of air—whether clear or murky, kind and number of clouds, and so on.

Before a lens can form an image of an object on the sensitive material (plate or film) it must be focused. In the fixed focus cameras, this is done by the manufacturer. In the scale focusing instruments, such as the folding pocket Kodaks of the larger sizes, it must be done by the operator, according to a scale. This focus, or distance from the lens to the plate, differs with different lenses, and with the same lense as the distance between camera and object is greater

or smaller. A lens has, therefore, a great many different foci, but one or all of these is referred to as "the focus" of the lens—it is the distance between the lens and the sensitive material when the lens is so focused or set as to give a sharp picture of distant objects.

Never try to take snapshots with your camera, except in sunlight. It should be understood that sunlight is to be shining on the object to be "taken." It is perfectly possible to be indoors and take a snapshot of something out of doors in bright sunlight; it is impossible to stand in bright sunlight and take a snapshot of something or somebody in a house.

The first attempts are best made on something which will not bother you with motion—a house, statue, tree. Load the camera in the house. If the shutter is of the type which must be set, see that it is set. See that the film is in position with the figure "1" behind the red glass window.

Take a position in front of what you wish to photograph. See that the sun is behind you, or to the right or left of you —not in front of you.

Hold the camera in the left hand, about the level of the stomach. Let it rest in that hand as on a table. Steady it with the right hand if you wish, but leave a finger for the moving of the lever or the pressing of the bulb, which makes the exposure.

Examine the image in the little "finder" or miniature camera with which all hand cameras are equipped, and see that what you want to "take" is in the middle of that miniature picture-frame. Then, stand still, stop breathing, press the bulb or throw the lever over and the deed is done. Remember, this is not an affair of strength. You want to do it gently. It is not the speed with which you throw the lever which causes the speed of the shutter. Too much effort on your part and you jar the camera and blur the picture. Be gentle, but sure.

Immediately on finishing, wind the film to the next number. Make this a habit. Otherwise you will never remember whether you have done it or not. Get it so firmly fixed in your mind that you always put a fresh film in position the

instant the last picture is made, and then you will always be ready for the next picture the instant it presents itself.

Some Exposure Hints

Underexposure is more to be feared than overexposure. In case of doubt between two exposures, give the longer one always.

When the surroundings are unusually bright, such as at the seashore, where sky, sand, and sea reflect great quantities of light, or on shipboard, where the same conditions obtain, make the opening in the lens smaller than for the same snapshots inland.

The same caution should be observed when making views from great heights overlooking a large expanse of country, and on tops of mountains.

When photographing objects close at hand, such as architectural details, the face of a statue, etc., remember that the life and soul of any detail picture are in the transparency of its shadows—and amplify the exposure accordingly. Thus, if a snapshot at the object would make a good picture at a distance of twenty-five feet or more, and you get within five or six feet in order to make a picture showing the detail of a part of it, use a tripod, and a quick "bulb" exposure—perhaps a quarter or a third of a second.

In landscape work, remember that greens and reds and browns "take" dark, and that blues and grays and shiny things—like water with light reflected from it, "take" white or light, and govern your exposures accordingly. In making pictures of people—which are much better made in the shade than in the sun, lengthen the exposure not only because of the decrease of light, but to avoid a contrasty negative which will make eyes seem like black holes in a chalky white face.

Distortion

With the best intentions in the world, and, so far as that goes, with the best outfit in the world, you will at times make pictures which show distortion. Houses lean backward, statues

are out plumb, feet and hands in portraits grow to unseemly sizes.

If you have a picture in which a house leans backward, it is certain proof that your instrument was not level when you took the picture. In all small hand cameras you must hold the instrument level when taking any picture which includes "right lines" such as a building, a pole, or a statue.

If the horizon line runs up or down hill, the camera, while it might have been level, was not plumb—that is, it was held tilted to one side or the other. The remedy—next time—is obvious. The remedy—this time—is to trim the finished print so that the edges and the horizon are parallel.

Too large hands and feet in a portrait photograph mean that you were too close to your sitter and that his hands and feet, being much nearer the camera than his body, "took," therefore, just so much larger. For instance, making a portrait of a man sitting down, with his face six feet from the camera, brings his knees perhaps two feet nearer the camera—four feet away. They are at but two-thirds the distance of the face. Remember to take large figures from a side view and to have such pictures with the sitters as nearly as possible in one plane, and you will avoid such distortion.

Brightness of Light

One of the hardest things the beginner has to learn is the difference between the visual brightness of light and its photographic brightness, or actinic value. Anyone can see that the light is brighter in the sunlight than in the shade of a tree, but few beginners realize that there is much difference between the light under a shady tree and in a house with windows open. Yet the light in any house, even a bright one, is almost invariably at least a hundred, and often several hundred, times slower, photographically, than the light under a shady tree outdoors.

In the same way, it is difficult for the beginner to understand why he should wait until 8:30 in the morning in summer before attempting snapshots. When the sun comes up in a

cloudless sky, it looks as bright as it does when it is several hours old. But the color of the light is really yellow and red, although it doesn't seem so unless there are white clouds for the light to shine on, when we have yellow or red sunrises or —the same thing applies to the other end of the day—red or yellow sunsets.

Now, red and yellow are two of the slowest colors to make any impression on the photographic film or plate. They require more time to make their impress; consequently, when the sunlight is mostly composed of red and yellow rays—to speak accurately, when the red and yellow rays of sunlight are the principal ones to reach the earth—it takes more time to make a picture, and so, generally speaking, snapshots with our little fixed focus box and relatively slow lens are impossible. In winter time, in latitudes of the United States and England, at least, the sun is so much farther south than in summer, and its rays strike the earth at so much more acute an angle and thus give so much larger a proportion of the red and yellow or non-actinic rays, that snapshotting has to be put off until later in the day to counteract the impoverished condition of the light.

Time Exposures

But just because you cannot take snapshots early and late in the shade, is no reason why you cannot take photographs. Such pictures are made by what is called a time exposure; that is, light is allowed to reach the film through the lens during an appreciable interval of time.

Making a time exposure is, of course, a matter of judgment as to the value of the light at hand. There is absolutely no short cut to this knowledge that I know of.

However, there are tentative suggestions which may be of some value. In making your first interior time exposure, pick out a bright room with two or more windows, and point the camera away from the windows, so that the windows are not in the view. Have them all wide open as to shutters and screens and roller shades. Have the camera on a table, chair or tripod support. It should not be necessary, but experience

tells me that it is, to say, "Don't try to hold the camera in the hands for any kind of an exposure but a snapshot." Certain failure is the sure result. Set the shutter for a time exposure, according to the directions which came with it. Time the exposure with a watch, and for a first experiment try one minute with the lens stopped at the large opening. The result will tell you whether you gave it too much or too little time; if too little, the resulting negative will have a great deal of clear glass or film showing, with no detail in the clear parts; if too much, which is hardly likely to happen, the whole negative will be very black and dense.

Time exposures outdoors are another story—with the same stop that you use for snapshots, they will range from a quarter of a second, which is about as fast as you can open and close the shutter, to two or three seconds, which is about as long as time exposures are usually made outdoors under ordinary circumstances.

Obtain, somehow, from someone, one or more good negatives. Get them from some amateur friend who knows the ropes, get them from your dealer or from the local professional. By having these on hand, you will learn how to judge your own results. If you haven't them, and have access to no one to whom you can go for advice, how are you going to tell when you have and when you haven't succeeded, as you should succeed?

I should also suggest having your first attempts developed by someone else—it is enough to do to learn to handle the camera and to judge light and exposures as a starter; when experience to some small degree is back of you, is full time to start on the subject of development for yourself.

MAKING MONEY AT HOME

MAKING THE HOME GARDEN

By ALBERT E. WILKINSON

MANY boys and girls are not familiar with the principles of vegetable-gardening. We shall therefore present some of the essential factors necessary to success in gardening.

Before the actual gardening is begun, a well-drawn plan should be made by each boy and girl. Draw your plan to a scale—that is, let each ¼ inch on the paper represent 1 foot in the garden. Using this scale on a garden 25 by 50 feet, we shall have a drawing that will be 6¼ by 12½ inches.

With this same unit of measure represent the rows as they should be made, always remembering that for each foot in the garden you will use one-fourth of an inch on the paper. Consult the table for the space between the rows of vegetables as well as for distances apart of the plants in the rows.

In planning a garden it is very important that vegetables of a tall habit of growth should be so placed that they will not shade the vegetables having a low habit of growth. This will give all the plants some sunlight.

Seeds

After the plan is drawn on paper the young gardener must decide how much seed will be needed. The planting-table will help in this. It has a list, or column, of the amount of seed required for 100 lineal feet. If the row in the garden is only 50 feet long, the seed required will be one-half the amount named in the table. It is always best to order more seed than is actually required.

When the quantity of seed is known it should be ordered from a reliable seed house. Consult a neighbor who has a successful garden.

Choose ten average seeds of one variety. Provide a box eighteen inches long, twelve inches wide, and at least two inches deep, and fill it with good garden soil. Make shallow lines in the soil one inch apart, of a depth about two to four times the diameter of the seed to be planted; place the ten seeds that you have chosen in the first of these shallow marks, or furrows. Mark the box at the end of the row on the wood, so that you will know the variety of seed that is planted in that row. Choose ten more seeds of another variety and plant them in the second row. Continue in this way until all the varieties of seed bought have ten samples planted in the box. Cover the seed and the rows with soil and press the soil firmly with the palms of your hands. Sprinkle about a pint of water over the soil and place the box near the stove or in a sunny window where it will have a fair amount of heat. Water the soil during the next two weeks. Mark on paper the date of planting the seed, and each day record the number of plants that show above the soil. If at the end of two weeks nine of the ten seeds in row one have shown above ground and are still healthy and green, the percentage of growth will be ninety; if eight, eighty; if six, sixty. If the test shows less than sixty per cent., more seed will have to be used in the actual planting of the garden in order to obtain the number of plants desired.

The above is the most valuable test of seeds, as it shows not only those seeds that will sprout well, but also those that under fair conditions will grow in the garden. Seeds that show a high percentage in this test will be profitable to plant.

Location

If father or mother will give you your choice of a place for your garden, choose a piece of land that has been under cultivation for two or three years. If this land slopes slightly toward the south and is a loamy, not clayey, soil, it will answer your purpose. If the land is near the hen-yard it will be well to fence the garden or to plan to keep the hens in their yard.

CHRYSANTHEMUMS

Preparation

With pieces of wood stake out the garden corners on the land to be used. These stakes will serve to show you where to spread manure, or where to plow, spade, or harrow.

If good, well-rotted stable manure is available, spread a generous coating of it on the garden. It is doubtful whether too much can be applied. Some of the best gardeners use as much as three or four inches of well-rotted manure spread over the land.

If the ground is plowed it should be done after the manure is spread, and should be to a depth of six or eight inches. It is better, however, to use a spade or a spading fork. Such a tool will turn the soil to a greater depth than will the plow, and if employed by a boy who will use his head as well as his hands in his work the manure can be placed at a very good depth.

Harrowing can follow the plowing, and fine smoothing can be done after that. If horse power is not used the hand rake will be the most serviceable tool. The rake can be used for breaking all lumps, as well as for leaving the soil level and smooth.

After raking, permanent stakes can be driven at the corners of the garden in place of the temporary stakes first used. A nail should be driven in the top of the southeast corner stake and exact measurements from this stake to the other stakes should be made, placing nails in the tops of the other stakes where they are found by measurement to be needed. The use of these nails will help greatly in future exact measurements for planting.

Planting

The time for planting as given in the planting-table must be used with common sense and varied to suit the conditions of weather and other local factors of the great outdoors. It is intended to serve merely as a guide. The young gardener should ask advice of the most successful grower of vegetables

PLANTING TABLE FOR VEGETABLES

Kind of vegetables	Seeds required for 100 feet of row	Distance apart of rows (hand cultivation)	Distance apart of plants in row	Depth to plant seed	Time to plant in open ground
Beans, bush, green	1 pt.	18 in.	5 to 8 plants per ft.	¾ in.	May to July
Beans, bush, wax	1 pt.	18 in.	5 to 8 plants per ft.	¾ in.	May to July
Beets	2 oz.	12 to 15 in.	5 to 6 plants per ft.	½ to ¾ in.	April to August
Cabbage, late	¼ oz.	24 in.	24 in.	½ in.	May to June
Carrots	1 oz.	12 in.	6 to 7 plants per ft.	½ in.	May to June
Corn, sweet	¼ pt.	30 in.	Hills, 24 in.	1 in.	May to June
Cucumbers	½ oz.	4 ft.	Hills, 4 ft.	1 in.	May to July
Lettuce	½ oz.	12 to 15 in.	10 to 12 in.	½ in.	April to September
Onion seed	1 oz.	12 in.	4 to 5 plants per ft.	½ to ¾ in.	April to May
Onion sets	1 qt.	12 in.	4 to 5 plants per ft.	1 to 1½ in.	April to May
Parsnips	½ oz.	15 to 18 in.	5 to 6 plants per ft.	½ to ¾ in.	April to May
Peppers	⅛ oz.	18 in.	15 in.	½ in.	May to June
Pumpkins	½ oz.	8 ft.	Hills, 10 ft.	1 in.	May to July
Radishes	1 oz.	12 in.	10 to 12 plants per ft.	½ in.	March to September
Spinach	1 oz.	12 in.	6 to 7 plants per ft.	1 in.	Early in spring or in August
Squash, bush	½ oz.	3 ft.	Hills, 3 ft.	1 in.	April to June
Squash, late	½ oz.	8 ft.	Hills, 8 ft.	1 in.	April to June
Tomatoes	⅛ oz.	3 ft.	3 ft.	½ to ¾ in.	May to June
Turnips, early	½ oz.	18 in.	6 to 7 plants per ft.	¼ to ½ in.	April or July
Turnips, rutabaga	¼ oz.	18 in.	3 to 4 plants per ft.	½ to ¾ in.	May to June
Watermelons	1 oz.	8 ft.	Hills, 8 ft.	1 in.	May to June

in his neighborhood. The months given are those appropriate for the Northern States.

In planting seed the rows in the garden should correspond to the rows as planned on the paper. Measurements from the nearest stakes at both ends of the rows should be taken. A garden line or some other means should be used for keeping the rows straight.

The table will serve as a guide in planting the seed, but no one can be taught gardening from a printed page. Consult your parents, your teacher, your district superintendent, and any successful gardener. Good advice at first hand will be valuable.

A furrow should be opened to the required depth with a hoe, which, as above said, should be guided by a line, or mark. The seed should be spread along the bottom of this furrow, then dirt should be filled in over the seed and pressed down by walking on it.

Care

If tomatoes or other plants are raised in a hotbed, cold-frame, or seed-bed, they should be removed with the largest amount of root surface possible and placed in the garden in the straight row planned for them, at the proper distance apart, in the following manner: With a trowel dig a hole larger than the plant roots need; fine the earth; set the roots of the plant slightly deeper in this fine earth than they grew; cover them with dirt; press hard; fill in more dirt, pressing now and then, until the level of the soil is reached. The plant will then be transplanted in such a way that it will have the best opportunity to grow.

If the plants come up too thickly they should be thinned according to directions given in the table under the heading "Distance apart of plants in row." This is necessary in order to give the remaining plants the space that they require for the best growth.

There are two things necessary for good cultivation—keep them in mind: first, absence of weeds; second, the surface soil should be loose at all times. This can easily be done with

the hand, the hoe, and the rake. Pull out the weeds, hoe around the plants, rake after hoeing.

If the season is exceptionally dry, water may be necessary for success in obtaining good growth. The hose, watering-can, or pails can be used. However, good culture from the beginning is the most important factor in maintaining the water supply.

Insects can be controlled somewhat by hand-picking. Diseases may be controlled by keeping the plants in a thrifty, continuously growing condition, by giving good culture, by watering, and by adding manure dissolved in water much diluted.

Here is one boy's actual experience, which he wrote out for his local Achievement Club, and entitled

How I Made My Garden

One day in winter, Mr. Tobin, the county superintendent of schools, came to our schoolhouse. It was awful cold that day. He told our teacher that he would like us to have a garden.

Mr. Shepard, our teacher, told us every day to try to have a garden. One day he said, "How many of you can have a garden?" Twenty-nine of us said that we could have a garden. I was one of the twenty-nine.

In the spring, about the first or second week in April, my father plowed, harrowed, and planked the ground for me. He then took a hand drill and sowed parsley and onion seed for me. The name of the onion seed was "Prize Takers." He sowed one-half bushel of seed. He bought the seed from Peter Henderson. The name of the parsley seed was English parsley. He sowed one-fourth of a pound of parsley seed. He bought the seed from Peter Henderson.

My garden was planted as follows: 4 feet by 54 feet to asters, 7 feet by 350 feet to onions, 6 feet by 280 feet to parsley.

After the onions and parsley were large enough we weeded and cultivated them several times. I worked for my father most all summer, and when I had a little chance, I worked in

SEVERAL VARIETIES OF DOUBLE, OR SHOW, DAHLIAS

my own garden. Along in August the tops of the onions were dry. We cut the tops off while the onions were standing in the ground. Then we pulled them out with a cultivator and raked them together with a rake. After this, the onions lay on the field a while to dry. Then they were picked up, put into bags, and my brother put them on the truck and took them to market. I got as high as $1.00 to $1.50 a bag for my onions. After the onions were out of the field, my father pulverized the ground several times. Then we sowed radishes where the onions had been. The radishes are all sold now.

The first parsley I sold was on June 29. We could only bunch our parsley three times, because the season is too short.

I also raised asters on my ground. My teacher gave me the plants, and showed me how to plant them. He also showed me how to pinch the center out of the asters. And how to break the little side branches off so the asters have long stems.

From my small garden I have sold $132.65 worth of vegetables and flowers. I am going to loan my money to my father and get interest on it.

MAKING AND SELLING THINGS

By THE EDITORS

WINDOW and porch boxes are an attractive and interesting way by which the boys can make some extra money and at the same time provide a pretty and useful household decoration.* These boxes, made with care and of the proper wood, last for years.

The size of the box is determined by the windows or porch for which they are made; if the box is smaller than the window, however, it may be adjusted by being well braced. The best wood to be used in their manufacture is well-seasoned white pine. Two essential features of a properly constructed box, which must not be overlooked by the boy anxious to make a serviceable as well as a decorative flower box, are several coats of asphalt varnish and the "bottom drainage." The former seals up all leaks and prevents the decay of the woodwork through the moisture of the soil. The latter should be provided by scattering over the bottom of the box after its completion a layer of old bones, chopped up, which answer the double purpose of providing food for the plants as well as drainage for the box, and because of the first quality are preferable to anything else which may be used. Care must be taken to see that the boards are evenly cut and properly and securely nailed in place.

Green, either light or dark, always makes an attractive color for the boxes; but it is well to know the color scheme of the windows and shades, and paint the boxes accordingly. Many beautiful panels are made of spruce wood, pine cones, grapevine and other appropriate designs. The idea is often further elaborated by the application of slender twigs of

*This hint is used by permission from "Bright Ideas for Money Making," published by George W. Jacobs and Co., Philadelphia.

spruce wood, which, after being carefully dried, are fastened on by means of brads and then varnished. Many attractive and beautiful effects have been accomplished by means of slender branches of bright-colored woods wired together; red cedar, red birch, and black walnut make an effective combination. Squares of white birch bark and the green pine cones also make a good combination.

In selecting the flowers for the boxes, the inexperienced boy would do well to consult a reliable florist; but in case there is none at hand, then choose flowers which continue in bloom all summer, such as geraniums, petunias, nasturtiums, sweet alyssum, pansies, phlox drummondii, and other showy annuals. The best plan is to send for several seed catalogues and study the same faithfully.

Not long ago *The American Boy* offered prizes for essays by their boy readers on the subject, "How I Made Money Last Summer." Two hundred and eighty-eight boys answered and their answers proved that they had made a total of $8,524.80 during the season. Some of their answers are very interesting, as showing how American boys are making good. A few of them are given below.

The Berries

About a week before school closed in June I thought of a scheme which I thought ought to be successful. While on my way home from school that afternoon I went to a number of housewives of Dunmore, asking every one I went to if they would buy any huckleberries they might need, from me. I did this every afternoon while school was in session, and when it closed I was ready to start to work. The day after school closed I went up to the towns in the mountains and bought all the berries I could get at the railroad stations for four and five cents a quart. When I got as many quarts as I could get for the day I put them in crates and had them sent to Dunmore. Next day I took them around on the cart and sold them. Every second day during the season I would

go out to the towns and buy a fresh supply of berries and the next day I would sell them. I got eleven cents a quart on an average, during the season. When the season was over, I figured out that I had sold nearly twenty-four hundred quarts of berries that cost me one hundred and twenty dollars, and after deducting expenses, gave me a profit of about one hundred and thirty dollars for the season.

The Auto-Cleaners

About a week after we had received our automobile I noticed how quickly it needed cleaning, oiling, and greasing. I also noticed that all the garages along the roadside, no matter how small, seemed to be prospering, so I asked my father if I might use his barn for my garage. He consented, and I wrote to a New York dealer and ordered my supplies. This done, my brother and I set off to find customers. One gentleman we saw knew several of the doctors in our town, and, following his advice, I called, telling them of my proposition. I was fortunate enough to secure most of them, cleaning and greasing their automobiles during their office hours.

I kept this work up until school started, when I was obliged to drop it. But before doing so I made arrangements for next year's work. From the latter part of July to the tenth of September I sold ten gallons of oil, six pounds of grease, and cleaned approximately forty automobiles. During this time I was amply supplied with spending money, replaced my stocks, bought a new tire for my bicycle, and the balance of my profits is in my father's care.

My Camera

I own a postcard camera and do my own developing and printing. While living in a country town this summer I took some views along the river and mountains. When finished I showed the postcards to a local storekeeper, immediately receiving an order for five hundred at two dollars and twenty-five cents a hundred. The total cost of the finished cards was

SWEET PEAS

about eighty-five cents a hundred, netting me a profit of one dollar and forty cents a hundred. During the entire summer I made about one thousand postcards; through the same storekeeper I also developed and printed films.

Some of the people of the village had views of their houses taken, which brought me seventy-five cents a dozen cards. By the time Labor Day came I had about twenty-five dollars, all of which had been made by my camera.

A High School Boy

One of the most remarkable boys the writer has ever known is Norton Ives, late of Trinity College. At my request he wrote an account of his business career in high school. But I ought to say—what he was too modest to add—that he not only did the work here recorded, but he played football on the big Central High School team of Detroit, he played on its baseball team, he was a member of all the popular fraternities and honor societies in school, he stood well in his studies and he was made president of his class senior year, the highest honor sought in the school.

"When I was a young boy about fifteen years old, there was always something fascinating and interesting about our early-morning-paper boy. I used to listen to his experiences which he would tell mother when he came to collect—how he had to get out in blizzards and break the heavy snow, how he froze his hands and feet, but most important, how he made money to buy his own clothes and meet all his personal expenses, saving the surplus in the bank.

"When I was in the second year in high school opportunity offered itself to me and I bought a morning Detroit *Free Press* route of 180 daily and 250 Sunday customers for $25.00. I soon made enough money to pay for the route, and then began putting it away in the bank. I did my own collecting every two weeks, paying the bill for the papers to the paper office. To see how profit was made, I had to pay one cent for each daily paper and received one and two-thirds cents for one; in other words, ten cents a week. With 180 of these it made

a profit of 180 × 2/3 cents, or $1.20 a morning. Then the Sunday customers, each one of which cost three and a half cents and sold for five cents, brought single gain of one and a half cents. The Sunday route had 250 customers, hence a profit of $3.75. With four of these Sundays and usually 26 weekdays, the monthly profit amounted to approximately $50. Of course, this is theoretical, and some little money was lost by moving of customers, and so on.

"The management of the route was easy if you had a system. My system was always to see that my alarm-clock was reliable to ring at 4:30 A. M.; to see that papers were delivered in good condition; to keep the route collected to date; to pay my bills regularly and to keep watch for any customers moving away and for new ones coming. Not unimportant is the fact that an early bed hour was essential or else you would be inclined to doze in school and at other places where sleepiness is a deficit. Such things as I did, sometimes, namely, to go to a party and return just in time to change my clothes for papers, were bad for my physique and mentality. If you did keep reasonably early hours there was nothing better to make you sturdy and to make red blood run in your veins. I never felt better than when I was doing the work and then to feel that you were able to depend on yourself for money at the time and that you were laying aside money for college expenses was most gratifying.

"Besides what I have mentioned it gave to me a good business experience in bookkeeping and finance. Very helpful to me were the acquaintances which I cultivated with so many families, and their differences taught me many things about people in general."

Suggestions for Girls

These four suggestions for girls who live in the country are made by Miss Rose and Miss Van Rensselaer of the New York College of Agriculture:

Canning Fruits and Vegetables.—Read Farmers' Bulletins Nos. 175 and 359, Department of Agriculture, Washington,

D. C., and see whether you cannot make the nicest row of jellies, canned fruits, and vegetables that were ever found in your cellar. If you would like some pin money, you will find your friends in town will want to purchase your products because you have a better opportunity than they to put up fruits and vegetables.

Making a Garden.—Ask for a quarter of an acre or more in which to make a garden all your own. You will be interested to know how it makes one grow to work with plants in one's own garden. A woman told me her husband gave her an acre of land to see what she could make upon it. She lived near a good market. At the end of the year she had made more money than her husband on his entire farm.

Poultry Raising.—Girls seem to have the knack of making a success of poultry raising. If you cannot start with a large flock, take some broody hens from the farm roost, and with a few good settings of eggs see how much you can make in one season. Try to get a better looking flock than the old one. It will do you good to hear them express themselves because you have fed them well and made them happy.

Household Accounts.—Perhaps father and mother have not time to keep the farm and household accounts. Every business succeeds better when this is done. This is as true of the household business as of the farm business. The daughter of the household may become a good bookkeeper, and thus save many dollars on the farm.

Taking Contracts

One boy in a small community distributed cards at the beginning of the summer vacation, indicating that he was ready, upon call, to run errands and carry messages. His telephone number was in a conspicuous place upon the card. At once he secured considerable business which he developed by mailing out a second reminder and by means of the commendations of those whom he had served faithfully. It was necessary, of course, for him to be within telephone call during the entire day time.

This plan could also be worked during the school year after school hours. The boy might have a card which would read something as follows:

ERRAND BOY ON CALL
FRANK MILLER
1417 Chester Ave.

Telephone, Main 132

Hours
School days, 4 to 8 P.M.
Saturdays, 8 A.M. to 6 P.M.

Terms reasonable

One boy puts it all down. This is his year's record:
"I have $20 in the bank which I have earned as follows:

$3.00 picking strawberries,
$2.00 picking currants,
$5.00 milking a cow,
$7.00 shoveling snow for neighbors,
$1.00 cleaning yard,
$1.50 odd jobs,
$0.50 selling knives."

Another boy tried this, with the following result:
"I have over $80 in the bank. Four years ago next summer I started a half-dime delivery and have earned over $50 doing errands. People 'phone for me and I have many errands to do out of school. I am thirteen years old."

THE "BACK YARD WORKSHOP"

Very enterprising is a bright Southern boy. He lives in a town in Georgia, and he set up a "Back Yard Workshop." He got the idea for it from *The Boy Craftsman*. He began by doing odd jobs for his own family, mending chairs, locks, doorknobs, making screens for the windows, flower boxes and such things. There is always something getting out of order around a house, especially when boys are about, as you all

know. Then, too, there are ever so many things a boy can make for the home, if he keeps his eyes open and his fingers busy. This boy soon had window boxes at every window, and some comfortable seats around the trees in the yard. It didn't take long for the neighbors to wake up to what he was doing, and very soon they were hiring him to mend their pieces of broken furniture, and make boxes. After a while he got that book on "Box Furniture" by Louise Bingham, and he has made some very good-looking articles.

The Job Boy

The winter is a harvest season for boys to earn money. Snow has to be shoveled off sidewalks, paths made, porches cleaned; lots of work of this sort is to be done. Three boys out in Michigan got the job of keeping the paths open in their neighborhood. They have some snow in Michigan, you know, and in a little suburban town, where there are many vacant lots, it means something to keep paths open so that the people can get about. But these boys did it. They made a snow-plow. "Harper's Outdoor Book" and Dan Beard's "American Boy's Handbook" told them how to do it. None of the people of their section had to complain that winter about wading through snow-drifts to get to the store or to the station or each other's houses. Every householder paid a small amount, but altogether it made a very nice sum for the boys.

An Upholsterer

A girl in Utah upholstered some chairs for her mother so satisfactorily that the neighbors employed her to fix up some of their worn pieces of furniture. She charges very moderately, and she is earning quite a lot of money.

The General Helper

A girl in Indiana let it be known that she was ready to help, if unexpected company came, or if someone was sick

and there was extra work to do. She was willing to do anything she could, and she was so trustworthy and did whatever work was given her so thoroughly, that she was called upon frequently to wait on the table, help wash dishes, take care of the children in the afternoon, amuse a convalescent child, or help get the children ready for school some morning when the mother didn't feel well. She earned quite a lot of money.

A Pet Guardian

In Chicago, a girl went among her friends, and offered to take care of their pets, while they were away on their summer holiday. She looked after canaries, dogs, cats, goldfish—anything of the kind, and earned enough to take a pleasant trip herself when her work was over.

A Silver Cleaner

A young housekeeper in South Carolina has quite a list of families whose silver she cleans once a week. This is a task many housekeepers dislike, and they are glad to pay her 25 cents, or 50 cents if they have a large amount of silver, to get this disagreeable task done for them.

New Maids

Two clever boys in a small town in New York State made a careful study of vacuum cleaners. When these boys felt sure they understood vacuum cleaners, they induced their fathers to advance the money to buy a hand-power machine. Then, on Saturdays and in after-school hours, they started in to clean houses. I tell you the women of that town welcomed these boys with open arms, for they and their machine meant no more sweeping and dusting, and women like to get rid of this work. The boys charged fifty cents an hour, and they soon had more work than they had time for. After business hours they cleaned some of the stores of the town, too, and thus filled up the time which housekeepers wouldn't want

The Child Lover

One girl in Vermont is a great lover of children. So on Saturday mornings, when mothers are very busy baking and straightening up the house, she goes around and gathers in all the children, and off they go for the entire morning to be taken care of by her. When they can, they play outdoors. But in the winter, or when it is too stormy, they troop into a spare room her mother lets her have and which she has made into a regular playroom. The children have grand times, their mothers know they are safe and being well taken care of.

Occasional Activities

Following is a list of occasional activities, of a wholesome character, that have been actually followed by boys or girls of elementary school age:

Raking leaves
Washing porches
Shoveling sidewalks
Cleaning cellars
Beating rugs
Mowing lawns
Washing windows
Filling envelopes
Cleaning cars and garages
Delivering statements
Making and selling dolls' wardrobes
Hemming napkins and tablecloths
Starting and selling tomato plants
Making and selling Canton flannel work-gloves
Raising herbs for seasoning in window-boxes
Picking berries
Making and selling bird-houses
Distributing circulars
Tending furnaces
Reading meters.

WORKING FOR AN EMPLOYER

IF a boy or girl expects some day to engage in some clerical occupation, office work with a good employer is a good way to spend the summer vacation. Work in an insurance office, for example, is of excellent value as giving one an insight into an important profession involving the keeping of accurate accounts, making estimates and of meeting individuals successfully.

In searching for a summer occupation, Prof. William A. McKeever names four important requirements. The first was that the work should not be so arduous as to overtax one's strength and so make one tired of it. Second, try to provide for some periods of rest, play, and recreation. Third, try to form a connection with some important type of industry. Fourth, do not place the money returns above its other considerations. Among the occupations of educational value, the writer suggests especially gardening, carpentry, farm work, and marketing produce.

Many a boy does not realize that an easy, quick method of earning money is not always thoroughly desirable. If a boy secures a position that pays $3.00 a day, while, as a matter of fact, he is really earning not more than 30 cents a day, he is likely to become dissatisfied with any reasonable reward that he gets afterward. The first question to ask when a boy secures a position is not, How much can I earn? but, How much can I learn? On the whole, it is better if the work required of a growing boy be somewhat rough and health-giving, and involving practical businesslike methods.

One boy of our acquaintance wanted to work on a farm in the summer. He was but fourteen, so his father hunted up a farmer who would be fair to him. The boy learned how to do all kinds of work well. At last accounts it had been

the means of his choice of a vocation and he had become a scientific farmer.

No matter what work is attempted in the summer-time, the requirements are just as great as those made of employees who work all the year round. Perhaps they are greater, for an employer is naturally less patient with a boy or girl who is at work only temporarily and in some branch of his business that does not require or show skill and trained ability.

We would like to quote part of a statement which was gathered by the superintendent of schools in Houston, Texas, from a very fair and very successful storekeeper in that city. What he says applies to young workmen and bookkeepers and errand boys nearly as much as to young clerks.

The first thing that I want of a clerk is that he should be attentive. Some children seem unable to put their minds on what they are doing, and to keep it there. I have no use for a clerk who does one thing while he is thinking about something else. I want him to put all his mind on the thing he is doing. If boys and girls in school learn nothing else than merely how to pay attention they learn something that is worth money to them.

Then again, I want boys and girls who are accurate. It is not necessary that they be able to do a great many things, but what they do, they should do well. They should make plain figures. If a boy makes a 2, he should make it so that just anybody can tell whether it is a 2, or a 5. If he writes the name of a customer, he should write it so there will be no doubt about the way it is spelled. It is not necessary that our young folks write beautifully, or even that they write particularly rapidly when they first come to us; but it is necessary that they should write plainly.

It is necessary that a boy know how to use a decimal point. If he makes a bill and you cannot tell whether it is for $3.05 or for $305, it is absolutely useless. When he puts down figures to add on a bill, he must put one exactly under the other, so that there will be no difficulty in adding them.

Courtesy

Another thing that we want in even our youngest employees is courtesy. Many children do not realize how much politeness counts for in life. People in a store would always rather buy from a clerk who is good-natured and polite than from one who is cross or rude. If the schools will teach the boys to be polite, they will teach something that will be of a great deal of practical value to them.

Then, again, we want them to have an idea of propriety. That is, we want them to know that certain things may be perfectly proper for certain places, but altogether out of place in others. For instance, our boys and girls ought to know, without being told, that it is not the right thing to do to chew gum in a store, or in any other public place. I have no use for a clerk who will chew gum while standing behind the counter, or waiting on customers.

I try to make my young people feel that the customer is boss of the store, even more than I am. I tell them that it is not worth while for them to jump up and get busy just because they see me coming, but the time for them to jump is when they see a customer coming. If they please the customer, they please me. If they do not please the customer, it is impossible for them to please me, no matter how busy they may seem to be.

A few other suggestions may be made concerning matters that were not touched upon in the statement above.

1. Dress according to your work. It is a bit hard for a young person who wears good clothes in school to put on rough garb for rough work. One is apt to fear the ridicule of his chums. The chum, however, is not the one who pays the wages, and nothing pleases a sensible employer more than to find his workers clothed as if they expected to do their work. The business man to-day fairly dreads the girl who comes to his office garbed as if for afternoon tea. This word is particularly needful in the case of boys and girls who work for their own parents, and who think because they are re-

lated to "the boss" that they should dress in unique apparel. It does not tend to harmony in the store or factory.

2. Punctuality is a minor matter, but yet important. There are really two kinds of employees: those who sell their time and those who sell their brains. (Of course, those who sell their time are supposed to have brains to offer, too.) The one who sells his time must be true to his working hours. The expert who sells his brains may do work in an hour that means more for the concern than the full day's work of everyone else in the office. When he gives that hour he really also gives his years of schooling, training, and experience. But you fall into the other class. Your time is the major thing you have to offer. So, be prompt, in the mornings and after lunch, and don't spend your last hour in the day glued to the clock, or the last half hour getting ready to go home.

3. The manner of the young employee is much. It should be interested, because, especially if he be a school boy, wherever he is employed, he has much to learn. It should be alert, because he is on trial and is already competing with somebody else who is hunting for a job. It should be obliging, because no matter what he is paid it is probably more, at the start, than he is worth. It should be cheery, because that helps every one in the office.

4. The young workman ought to be loyal to his employer and his employment. This means that he will honestly and patiently try to do what he is told, if it is something that it is honest and fair for him to do. Of course, loyalty is a mutual word, and implies a requirement from the employer as well as from the employee. In an ideal world the interests of employer and employee will be one. They are already in the best business houses. But to-day the employer has an advantage over his working people, especially those who are inexperienced and unskilled. A few use this advantage unfairly. A mutual relation of loyalty requires that an employee shall do his work well and that his employer shall pay him the full sum of his agreed wages promptly. For either to fail in his part of this agreement would be disloyalty to the other. Few employers to-day forget this fundamental of loyalty, but many young

workers who complain because of the smallness of their wages forget that they have perhaps not given a fair return even for their present wages.

5. No factor in early business experience is more vital than perseverance. Piqued by imaginary injustice or lack of appreciation, many young people throw up their positions and thus start the habit of drifting rapidly from one place to another. They do not realize what their employers have put up with in suffering from their inexperience and clumsiness. Of course the sooner one gets away from a place where he is a perfect misfit, the better. But the untrained person does not at once fit anywhere. Those who go from place to place, waiting until they are "suited," are doing themselves the great injustice of losing valuable apprenticeship somewhere, and are in danger of dropping at length into that hopeless class, known as "unemployables." This sort of dissatisfaction is not likely to arise if a student can find, for his vacation employment, some work that is akin to what he intends to make his future vocation. Such work is bound to be interesting and satisfying.

The Rule Book

One of the greatest business enterprises in this country is the firm of Marshall Field & Co., Chicago. This institution issues a "Rule Book," a copy of which is placed in the hands of every employee. Some quotations from this book will be suggestive as indicating what a model house expects of its young employees. The following terse and strong statement, printed at the beginning of this book, is entitled "The Marshall Field & Company Idea":

"To do the right thing, at the right time, in the right way; to do some things better than they were ever done before; to eliminate errors; to know both sides of the question; to be courteous; to be an example; to work for love of the work; to anticipate requirements; to develop resources; to recognize no impediment; to master circumstances; to act from reason rather than rule; to be satisfied with nothing short of perfection."

HOW TO KEEP PERSONAL ACCOUNTS

By THE EDITORS

BOOKS ruled after every conceivable system can be bought at the stationer's, but none of them are just exactly what you want for this purpose, and accordingly it is just as well to get a cloth-covered blank book which you can rule yourself according to the system illustrated here. The sample page was suggested by a recent article in the *Youth's Companion*.

Every item of receipt and every item of expenditure should be entered in order, but the chief value of the account will be lost unless the sums paid out are grouped under certain heads, instead of being merely set down one under the other and then added. What you need to know is not merely how much you spend but what proportion you spend needlessly.

The column for clothing implies that you buy your own clothes and this account is kept from month to month and year to year, and is very important to you in checking the cost of staple articles of apparel. The column for food does not include the regular family meals, unless you pay your board, but is intended rather to keep account of school lunches, sodas, etc., or anything in the way of food which you pay out of your own pocket.

The column for recreation is intended for the amount you spend upon the "movies," theater, parties, picnics, camping, or any form of pleasure. The column for higher life includes expenses of educational journeys, books or magazines bought, tickets to lectures and concerts that are educational rather than recreational, and money given to the church or charity. The column for sundries will include everything that eludes classification. Put down frankly everything that you have forgotten.

RECEIPTS			EXPENDITURES		Clothing	Food	Recreation	Higher Life	Sundries	Savings	Total
	Brought over.....	$22.48	Jan. 6	Shoes	$2.50						$2.50
Jan. 6	Allowance.....	1.50		Soda		$ .10					.10
	Interest from Savings Bank	.85		Moving pictures...			$ .10				.10
Jan. 8	Sold mushrooms...	1.00	Jan. 7	Birthday gift for Mother.....				$1.25			1.25
				Carfare, 3 days....					$ .60		.60
			Jan. 9	Church collection..				.15			.15
			Jan. 10	School lunch.....		.20					.20
				Pressing suit.....	.50						.50
				School society dues					.50		.50
			Jan. 11	Deposited in bank..						$1.00	1.00
Jan. 12	Brought over.....	$18.93			$3.00	$ .30	$ .10	$1.40	$1.10	$1.00	$6.90

KEEPING WELL

THE CARE OF THE BODY IN HEALTH

By ANDREW F. CURRIER, M.D.

ONE of the most effective ways of stamping out disease is to have regard for those laws and conditions by which the body may usually be kept in a state of health. No one of intelligence or experience would deny that many people come into the world with such a legacy of physical sins handed down from their ancestors, near and remote, that they are fatally handicapped, and succumb after a short struggle, sometimes hastening the issue by disregard or ignorance of their inherited weakness, and sometimes yielding after every precaution which they and their friends may have taken to rid them of the fatal incubus.

Knowledge which appertains to the ordinary care of the body in health, or while disease is yet in abeyance, is variously known as sanitary science, preventive medicine, hygiene, etc. Its great importance is dawning upon the minds of the people as it did long since upon the minds of the doctors. It is not quite true, as Dr. O. W. Holmes has said, that "If all the medicine in the world were sunk in the sea it would be better for humanity and worse for fish," but it is true that, with suitable precautions, when one is well he may often avoid being sick, and consequently avoid the necessity of taking medicine.

The human machinery may be deranged and get out of order in so many ways that it would seem only the part of common sense to give a little time to the consideration of the problems which affect at least the physical well-being of everyone.

When Pope wrote that "The proper study of mankind is

man," he must have had his physical condition, no less than his moral and intellectual in view, for he knew by personal experience what were the discomforts which attended the want of physical health.

Choice of Climate

Admitting that an individual in a fairly robust condition is in very many instances capable of habituating himself to almost any condition of climate, without seriously encroaching upon his vitality, what are the elements which must be considered by one of defective vitality in selecting for himself a place of residence?

The first requisite would seem to be that there should be no great extremes in temperature, and particularly that there should be no sudden and extensive variations. A variation of forty or fifty degrees in twenty-four hours could not fail to make an unfavorable impression upon a sensitive and delicate physical condition. The climate which at present seems to be considered most favorable for invalids from whatever cause must have a pretty uniform temperature during the greater portion of the year.

In respect to altitude, there are many places both at the sea-level, and at elevations of 1,000 to 5,000 feet, in which the variations of temperature are neither very great nor very sudden. The sea-level, or its vicinity, may be selected if the individual has dryness of the skin and mucous membranes, and a higher elevation when there is moist skin and catarrhal mucous membranes. A region which is often visited by strong winds, whether dry or moist, and whether containing irritating substances or not, should be avoided if possible. A forest region, especially of the evergreen variety, may be particularly beneficial for those who are suffering with affections of the throat and lungs.

An elevated plateau, if the winds are not strong, is also a favorable location in many instances. A location in which it is possible to have an abundant supply of sunlight, apart from the tropics or the depressing heat of summer in temperate zones, is most desirable. A climate in which the atmosphere is con-

stantly charged with moisture is undesirable and is almost certain to intensify disease in which there is moisture of the skin, and debilitating discharges from the mucous membranes. Change of climate and removal from the familiar surroundings of home is not recommended for those who are far advanced in disease of whatever nature. However balmy the atmosphere, or exhilarating the breezes, or soothing the sunlight, it is not home, and only excites the lament of the exiled Switzer: "*Ach mein Land, meine Gebirge.*" Such a removal often hastens the final issue, and while in hopeless cases this may not be a decided objection, because of the relief to suffering which it affords, it remains a fact that with most of us, if we were allowed to choose our method of departure, there would be a preference to close our eyes to the present stage of existence in the company of those we love and who love us, and with the objects around us to which we have been accustomed, and which association has made almost a part of us.

Change of climate and of residence is for those whom disease may have attacked but not overcome, and who still have good resisting power It is astonishing how many in this category find recovery and restoration to health by migration to a climate suited to their condition, and are enabled to continue their life-work in the new environment, or in some cases to go back again with safety to their former home. A discussion of the various health resorts for various forms of disease would be too exacting upon the limits of this essay.

Quality of Drinking Water .

When we realize that from two-thirds to three-quarters of the entire weight of the body is water, that most of our food is water, and that many people are taking one or two quarts of it in an undiluted condition every day of their lives, in addition to that which is constantly taken in combination with their food, it becomes a matter of decided importance to know that it is pure and potable.

Potable water may be defined as a fluid which is reasonably free from noxious germs and from harmful ingredients of all

kinds, whether in solution, in suspension, or in sediment. It should have no disagreeable taste nor offensive odor, and its attractiveness is increased when it is clear and transparent, and of sufficiently low temperature to produce an agreeable sense of coolness not only in the mouth and stomach, but throughout the entire body.

It is difficult to say which is preferable, a private or public water supply. In certain cases one or the other must be depended upon. A private supply is often impure, owing to the carelessness or ignorance of the individual. A public supply cannot long be impure and harmful without endangering the health of the community, and consequently exposing the company or corporation to the risk of litigation for heavy damages.

Water drains through porous soils or flows along the surface, taking a course which is influenced by the slope and inclination of the ground over which, or through which, it may flow. It flows in streams along the surface, or sometimes under the surface, collects in springs and pools in the course of its drainage below the surface, and is collected in cisterns and reservoirs, either natural or artificial, as it falls from the clouds.

Where there is no public supply, premises become the more valuable as they are supplied with springs and streams which become available with the minimum outlay of force and expense.

Water is a complex substance; it is never absolutely free from organic and inorganic material, or both, except when produced by the direct combination of oxygen and hydrogen, or when derived from distillation. The dissolving or solvent power of water being great, it gathers many substances in a dissolved condition as it flows along, or as it remains stationary in the location where it may have been collected. Animal and vegetable life make large contributions to the constituents of water, but the inorganic or mineral elements which are also constituents, are far more abundant. Animal sewage, decayed and decomposing vegetation, the eggs and larvæ of countless insects, the germs of numerous diseases are of such frequent occurrence in water, and are capable of doing so much mischief, that rigid tests of public water supplies are often re-

quired. Unfortunately, the test is seldom made until disease or death has awakened the community to a sense of the necessity of making it. Typhoid fever in countless cases has been communicated by drinking water contaminated with the germs of the disease. The same is equally true of intermittent or malarial fever. Cows have been seen by the author wading in a stream filled with vegetation upon which they were grazing, this stream forming the water supply of a city about two miles distant. The same stream was alleged to have been infected with sewage flowing from a large public institution nearby. This water was passed through filter beds, but it is questionable whether any filter bed is so perfect as to exclude microscopical germs. It is not strange that typhoid fever prevailed in the community which had this water supply, nor that bacteria which are peculiar to the large intestine in man and animals should be repeatedly found in water which was derived from this source. Many equally flagrant cases would doubtless be revealed, if the water supplies of other communities were carefully investigated. Is not this a sufficient proof that our public water sources cannot be too rigorously protected?

All our so-called mineral springs contain inorganic matter in solution, and in some of them the quantity is large and materially affects the quality and influence of the water. Water which contains lead, sulphur, lime, iron, magnesia, lithia, etc., is of such common occurrence that it is hardly necessary to mention it, while the water of the ocean contains not only chloride of sodium, or common salt, in abundance, but often bromine, iodine, and other minerals which are useful in some instances and harmful in others.

Water is hard or soft, according as it contains much or little inorganic matter; lime water is hard, rain water is soft. It is commonly stated that water purifies itself of impurities after flowing a certain number of miles. Such a statement is very misleading. It is doubtless true that many substances which are heavier than water are dropped or settled after flowing a greater or less distance, but there is no reason for supposing that substances which are in perfect solution, or which are of a microscopic size, are thus rendered innocuous; indeed, these are

the substances from which most harm is likely to be derived. The water which contains them may be as clear as crystal, and yet it may abound in deadly poisons. It is not well to trust therefore to the appearance of water in deciding its potability and healthfulness.

Filtration

How may water which is of doubtful purity be rendered harmless?

It is not always easy to change one's water supply; it is always possible to render it absolutely free from harmful influences Among the methods which are in use for the artificial purification of water may be mentioned filtration, the use of chemicals, boiling, and distillation.

Water which is simply turbid, without materials which are actually injurious, a condition which is of usual occurrence after a storm or other exciting cause which disturbs the bottom over which it flows, may be rendered clear by simply allowing it to stand for a few minutes before it is used. The substances which are in suspension then sink to the bottom of the containing vessel, the clear fluid can be poured off, decanted, and the lower portion containing the sediment can be discarded.

Filtration is a very common method of treating water which is impure. Sometimes it is effective, and often it is ineffective. It consists in passing the water through a porous substance, the impurities being left behind if possible. Sometimes a porous stone, soapstone, porcelain, etc., is used; sometimes sand, charcoal, or other substances are used as percolators, the theory being that the pure water filters through and leaves the impurities behind. This may be effective for large particles; it is not effective for substances which are in solution. Besides, if the filtering material is not frequently renewed, the pressure of the water may be sufficient to force through the material which has accumulated from the first filtrations, and the filter becomes of no use whatever. Many forms of filtering apparatus are on the market; the most of them are worthless so far as furnishing protection from water impurities is concerned. A piece of coarse linen toweling wound about the water tap,

and frequently changed, will catch the coarser materials as the water flows through it as effectively as the expensive forms of apparatus, most of which can do little more than this. If one is about to buy a filtering apparatus it is better to first talk the matter over with an intelligent physician or expert chemist, rather than trust to the plausible arguments of the man who has filtering apparatus to sell. In many cities filtering beds are used on a large scale, and sometimes with satisfaction.

As an example of the above, the city of Poughkeepsie, N. Y., which is on the Hudson River, has derived its water supply from that river for many years. The tide water is of course salt, but with the outgoing tide the supply from above the city is fresh. This is pumped into beds of sand which are near the river, and then forced into a reservoir at an elevation of several hundred feet, from which, with ample force, it is distributed over the city.

The addition of certain chemicals to water which is of doubtful purity will destroy animal or vegetable germs which it may contain, and render it innocuous. One of the least objectionable substances which may be used for this purpose is dilute hydrochloric acid. A teaspoonful of this in a quart of water will slightly acidulate it and not render it unpalatable. It is better to use this than to use the stronger, more corrosive acids, which are very dangerous in the hands of the careless or ignorant.

More effective than the use of weak acids, and positively without danger, is the subjection of suspected water to a boiling temperature for half an hour. This will positively destroy all noxious germs. There are many germs which will resist a freezing temperature with ease and apparent comfort, but none have yet been found which would endure boiling. If any sediment remains after the water has been boiled, straining or filtering through a linen towel will remove it. When such water has been cooled it is by no means unpalatable and is absolutely safe. The dead taste which is the more apparent when it is not cold, may be overcome by forcing air into it with a bellows, or by hanging the vessel containing it in a draught, where it will swing back and forth and absorb air, its tempera-

ture being lowered at the same time. Distillation is an equally efficient method of obtaining absolutely pure water, but it is more troublesome than boiling where small quantities only are desired. At the present time the distillation of water in large quantities is an important industry, and is to be commended and encouraged when the question of expense is not important. Ice which is artificially made from distilled water is far safer than the natural supply for reasons which were given.

The general conclusion in regard to a water supply, whether public or private, may be, therefore, that it should be abundant, from twenty-five to fifty gallons per day for each individual, sufficient for drinking, washing, for the use of animals, and for keeping premises surrounding one's residence sufficiently moist; that it should be pure; that it should be kept in motion as much as possible (stagnation in metallic pipes, in cisterns or in pools often contaminates it), and that it should be without offensive taste or odor.

Air as a Tonic

If a salubrious climate, and a suitable soil, and a proper supply of water are indispensable requisites to health, certainly not less indispensable is a sufficient volume of pure air. From the moment a human being enters the world, when the lungs expand for the first time and give expression to it in a cry, till the last gasp of physical existence, there is one imperious requirement which must ever be satisfied, the requirement for air. It matters not what the condition of the individual may be, savage or sage, saint or sinner, pauper or millionaire, air he must have or die.

Air is a mixture, four of its parts being nitrogen and one oxygen, the latter being the essential element, and being taken into the blood in connection with the process of breathing. The two gases are so loosely combined that the oxygen is easily separated from the nitrogen. Air also contains argon, watery vapor, carbonic dioxide, dust, smoke, and various other impurities. The higher we ascend, the rarer and purer the air; and the purer the air, the more the mucous membrane of the

lungs is stimulated, and the faster we breathe. In cities where the air is loaded with the smoke from factories, the gases from the breaking up of various chemicals, the carbonic acid gas from the exhalation from the lungs of countless men and animals, and the effluvia from decomposing animal and vegetable waste material, it is far less wholesome than in the country where vast areas of open space permit the free movements of atmospheric currents, where the vegetation is constantly yielding oxygen and absorbing carbonic acid, and where the number of men and animals which are drawing upon the supply is far too small to make the slightest effect upon the total volume which is drawn upon, or to interfere with its purity. Unless a house or other enclosure which is occupied by men or animals is in free communication with the external air, it is far less capable of sustaining life than the external air.

In winter, many houses have a totally inadequate air supply. They are overheated from stoves or furnaces, windows are sealed, the burning of lamps, candles, and illuminating gas consumes much oxygen, and the air supply is further contaminated by the escape of deadly coal gas and the carbonic dioxide which is exhaled from the lungs of their occupants. It is not strange that for this reason much more sickness prevails in winter than in summer, and that too in a season when the cold, external air is more stimulating and bracing than at any other time in the year. There is little doubt that a large proportion of the disease which prevails during the winter season could be entirely avoided, if greater wisdom were shown in admitting to our houses a sufficient volume of pure air, the freest and most abundant of all the gifts of nature.

Air in motion is much more salubrious than air which is stagnant. We realize this in the sultry days of summer when a cool breeze or the brisk action of a fan gives an agreeable change to our feelings. We realize it too after reaching the top of a hill or mountain where we are at once exhilarated and revived by the wind and the lighter atmosphere. Moving air, even when it contains impurities, has less chance of doing harm than stagnant air.

Impurities in the Air

It has already been stated that the ordinary atmospheric air contains much that is unnecessary, much that is harmful to animal life. Some of the more common impurities should be well considered, for they may often be avoided or disposed of. Air which contains much watery vapor is both disagreeable and depressing in its effects upon vitality, especially when it is associated with elevated temperature. The artificial disturbance of such air with fans brings relief, and the general use of electric fans is one of the most useful applications of that beneficent force.

Probably the most common of all the impurities in the atmosphere is carbon dioxide, or carbonic acid gas as it is commonly called. This is a result of combustion, and its most common source in our houses is the exhalation from the lungs of those who occupy them. It is usually abundant in rooms in which large numbers of people are gathered, especially at night when the oxygen in the air is also consumed by the burning of lamps and illuminating gas. It produces drowsiness and inability to concentrate the mind, but this feeling is quickly recovered from when the gas is replaced by a sufficient supply of pure air.

The exhalations from the body and from the lungs of many individuals yield other gases which may be offensive, or even nauseating, to those who may be compelled to breathe the atmosphere which has been infected by them.

A far more deadly gas is the carbonic oxide, which we commonly know as coal gas, and which is the result of imperfect combustion. It is very irritating to the breathing apparatus, and is at once perceived when proceeding from a leaky stove or furnace, or one in which the fuel burns imperfectly.

Impurities in the air proceeding from decomposing animal and vegetable material of all kinds are not always directly dangerous to life, though they are often very offensive and nauseating, especially when the air space in which they are diffused is a limited one. Exhalations from sewers, privy vaults, etc.,

which permeate a house with defective structure or defective plumbing, are not always offensive; they may be odorless. They are probably responsible for much disease, but perhaps not for as much as is charged to them. It is for the interest of certain tradespeople and others to keep up an agitation of this kind, and particularly when, as in this case, there is a foundation of truth.

The Healthy Home

The consideration of the home from the hygienic standpoint is susceptible of a great variety of treatment, according as it is in the country or the city, isolated or united more or less closely with other buildings, massive or flimsy in its construction, costly or inexpensive. And yet there are certain conditions which ought to be satisfied, wherever and whatever the home may be. We are considering the home particularly as the abode or the place of living of human beings.

It goes without saying that the home should be built of substantial materials, having in view always the corroding effects of the elements, heat, moisture, and time. If *you* are building the home, give the contract, by all means, to a builder who has experience and character. Otherwise, and especially if he finds he has miscalculated as to his profits, you may expect he will use unseasoned timber, untempered mortar, and workmen who will bear watching. A home built under such unfavorable conditions will always be a source of vexation, expense, and dissatisfaction.

Dryness in a house is essential to health. Cellars and ground adjacent to the home should be well drained. Walls that are inclined to be moist should be dried by throwing doors and windows open, and letting in the air and sunlight; also by artificial heat if the former method is ineffective. If this does not avail, and the walls persist in being moist, abandon the house; it is unfit for residence.

Air And Sunlight

The best houses are those which are open to the air and light on all sides. If this is impossible to obtain—and it is im-

possible for all in the city but a very few—try and get a home where at least the sitting-room faces east or south, and where a draught from windows in front and rear and from air shafts, if possible, will stir up the atmosphere two or three times a day and blow out impurities.

Alas! how many homes, so-called, there are in tenement-houses big and little, pretentious and unpretentious, where the blessed sunlight never comes and the air is constantly loaded with the impurities of the ages and various other things. Pure air sometimes strays in by accident, but it may be unwelcome, so accustomed do people become after a time to darkness and filth and foul odors.

Air in the Sleeping-Room

It is especially desirable that the sleeping-room should communicate with the external air. Air shafts, especially in tenement houses, are often most imperfect means, either of getting rid of foul air or supplying that which is pure, and the small rooms (closets), which are so common in cities, which have neither air shafts nor windows, which may connect with a gloomy hall or by a transom over the door, ought to be suppressed by law. They are hardly fit for store rooms.

To state in figures the air space which is necessary for the average human being, the cubic feet of air inhaled and carbonic acid gas exhaled, and the volume of inflowing air required to satisfy the normal respiration, would only confuse the average reader, so the matter may be condensed, by advising every one to have as large a sleeping room as he can get, with walls at least ten feet high, with a window facing the east, if possible, so that the sun may look cheerily in and bid him good morning, and let him see to it that his window is open when he goes to bed.

Ventilation

Ventilation, as applied to the home, means the removal of impure air and gases and the admission of pure air. Of course this definition is equally applicable to any and all buildings.

The air in any limited space becomes exhausted as it is used in respiration. At the same time it becomes impure and unsuitable for respiration by the addition of carbonic acid gas, which is exhaled with every expiration of the lungs. It is further contaminated by exhalations from the body, by the vapors from cooked food, by coal and sewer gas, by the combustion of lamps and illuminating gas, by dust and dirt which find an entrance into every house, and by the germs of disease. The problem is, therefore, to get rid of the impure air and to have a constant supply of fresh and pure air. Few, if any, houses are so carefully made that air cannot enter by cracks in doors and windows, and by the loose joints which have resulted from bad workmanship or shrinking materials. But this will seldom result in effective ventilation, even when the winds are high and resist all attempts to shut them out, except, of course, in the most primitive or the most dilapidated houses. In warm weather, ventilation is easily effected by keeping doors and windows open most of the time. In cold weather (except, of course, in the extreme of cold weather) let the house be freely opened morning and evening for half an hour or so, and flushed, as it were, with fresh air. In the meantime, try and arrange a draught by the stairways, or by the air-shafts and windows and doors, if one's home is on a single floor, which shall provide a continuous inflow of pure air, and an outflow of impure air. Ventilation may be provided in windows or in walls, one for the heavy gases at the bottom, and another for the lighter ones at the top of the room. Many systems of ventilation involving more or less expense have been advocated, but for private dwellings, especially when the question of expense is to be considered, an efficient system can always be devised with the exercise of ordinary common sense, by utilizing doors, windows and stairways. For public institutions, or very large buildings, some definite system of ventilation is imperative, just as one would follow a definite system of lighting and heating. In all cases, the simplest method should be followed when possible.

Heating the House

Not the least important question in the hygiene of the home is that of heating during the months when artificial heat must be afforded. In the kitchen the problem is present during all periods of the year, and is a most difficult one, the elevation of temperature in small and poorly ventilated rooms being often almost insufferable. If this excess of heat cannot be conducted to some point where it may be utilized, flues or draughts should be arranged whereby it may be conducted away. When one thinks of the enormous amount of force which is wasted by the present methods, one cannot help looking forward with great longing to the already nearly perfected methods of supplying heat in the kitchen by illuminating gas and electricity, whereby only so much heat will be used as is required to accomplish a certain amount of work. The increased comfort of those who have to work in the kitchen should in itself be a stimulus to find some method by which the excessive radiation of heat from cooking stoves may be avoided.

Various methods are in vogue for heating houses with hot air, steam, hot water, illuminating (i.e., coal) gas, electricity, etc. The subject is one which is undergoing rapid evolution, and will result in a few years, in all probability, in the general use of electricity as a means of heating houses.

Each method has its advocates and its good features. The hot air furnace, if the hot air be suitably mixed with pure cold air, is one of the most approved means of heating, being in most cases cheaper than others, and open to few objections which are not remediable. Hot air obtained by steam and hot water plants is merely another way of obtaining heat by radiation. Many writers, especially those who write from the standpoint of personal interest, assert the superiority of these methods of heating to that of the hot air furnace; the latter continues to be used, however, by many who are not yet convinced of its inferiority. Heating by electricity may obviate the objections to other methods, and be the chosen one of the near future.

It must be remembered that all methods of artificial heating dry, to an unwholesome degree, the atmosphere which has been heated. They also introduce into it not infrequently many objectionable elements, offensive odors, dust, coal gas, etc. The excessive dryness of the atmosphere can always be remedied by the evaporation of water in the room to which the heat is applied, and a good plan of ventilation will keep the air tolerably pure. As a matter of fact, the majority of houses which are heated artificially are unhealthful.

Disease in the temperate zone is more frequent and more fatal in the winter than in the summer months, and this is probably owing to the diminished resisting power which results from the constant breathing of vitiated air in over-heated houses.

The Plumber's Work

The introduction of running water placed into places of residence, with the accompanying series of waste pipes leading to sewers and cesspools, has added greatly to the comfort of living. In many communities it has done away with the inconvenient and often unsanitary outhouse, it has vastly increased the use of the bath, it has diminished the labor of transporting the water supply to the various parts of a house—often a matter of great importance when the house is large and its occupants many—and in numerous other ways it has been of great benefit. It is not surprising that the blessing which has resulted has not been an unmixed one. Pipes made of lead (and plumbing means working in lead) seem to have been usually preferred for the conveyance of the water, partly for economy's sake, partly because lead is easily worked. They may also be corroded and dissolved, and not a few cases of lead poisoning are doubtless traceable to drinking water which has been contaminated by standing in pipes which have yielded more or less of their substance to it.

Very hot water is, of course, much more likely to dissolve the lead through which it passes than is cold water, and the experience of corroded pipes riddled with holes from such a cause is not an unfamiliar one. A more resisting, more dura-

ble substance for water pipes in houses, and not more expensive than lead, is desirable.

In many houses the traps in waste pipes are badly constructed. They become clogged with more or less solid material, especially with filth; they often fail to prevent the upward passage of noxious gases from sewers and cesspools, which may be the more harmful because odorless. The trap is merely an obstruction which is formed by a crooked pipe and a column of water. It is not impossible that many gases can penetrate this obstruction and not lose their power to produce mischief. It is, therefore, a very difficult matter to decide that one is sufficiently protected from such evils. The use of suitable disinfectants in traps—like chloride of lime, or chloride of iron—will be of service, but the complete remedy will come only when a more perfect system of house plumbing has been developed.

The abandonment in many houses of the systems of water pipes is a confession of weakness. Besides, even when this has been done, it has usually been done only in part, the bathroom and watercloset pipes being retained, so that if infection were present in a given house, it would still be present, even though in a minor degree, when any waste pipes at all remain.

In addition to the foregoing, there are certain general considerations which should always be regarded, if the home is to be considered as satisfying fundamental sanitary requirements. It must be kept clean and free from dust and dirt. "Cleanliness is next to godliness" in more respects than one. It should be kept from bad odors, that is, the air supply should be ample. It should not be overloaded with furniture, and particularly with curtains and hangings, which shut out air and light, and accumulate dirt, disease germs, etc. From the sanitary standpoint it would be better to do away with these things, and substitute those which can be freely washed and scrubbed, and which can harbor no elements of disease. From an æsthetic point it is to be feared that such a crusade would at least be premature. Beds and bedding must be an especial object for sanitary regulation. Iron or brass bedsteads, hard and clean hair mattresses, sheets of cotton or linen always clean, blan-

kets also clean, and everything well aired and ventilated; these will produce sleep and promote health.

Our Clothing

Of course the first requisite of clothing is that it must be adapted to the purpose for which it is to be used: the mechanic must have coarse clothing, or overalls; the house servant must have an apron or a wrapper; children must be equipped for the various mishaps to which they are liable, and the idle butterflies, male and female, must be so robed as to attract attention and excite remark, if possible. It must also be remembered that the primary object of clothing is not to communicate heat to the body, but to furnish a barrier between the temperature of the atmosphere and the temperature of the body. The latter in health is nearly constant (98.4° F.), the former is constantly varying.

Savages, except in very cold climates, do not require clothing, the skin being toughened by exposure and becoming an efficient non-conductor of heat and cold. We wear light clothing in summer, because this prevents the passage of heat rays through it to the body. We wear dark clothes in winter, because they absorb heat rays and exclude rays of light. Furs and woolens are agreeable and suitable in cold weather, because they are excellent non-conductors. Whether one should wear cotton, woolen, silk, or linen next the skin must be settled by choice, by experience, and not infrequently by the stern conditions imposed by limited financial means. Each of these different materials has its advocates, who claim its superiority to the others.

Personal experience inclines the writer to prefer woolen undergarments, but never very heavy, for all weather except the heated months of summer. They absorb the perspiration readily, do not, when moist, give to the body the unpleasant, chilly sensation given by damp cotton undergarments, and have seemed the most efficient non-conductors, especially for great variations in the temperature.

It seems hardly necessary to say that loose clothing in sum-

mer is the more comfortable, the body moving the more freely and the radiation from the body being less impeded than by clothing which restricts and binds. In cold weather, on the other hand, snug-fitting garments prevent too free radiation of the body heat, and also prevent the access of cold currents of air which rapidly neutralize the body heat. Clothing should never be so tight as to constrict the body and interfere with the circulation. Soft hats are more salubrious than firm and stiff ones. The covering for the feet should be broad of sole, low of heel, and ample of upper. The ridiculous fashions in shoes are bringing their just penalty in deformities and diseases of the feet.

Garments which are made wholly, or in part, of rubber are almost impervious to air. Radiation of heat from the body outward is prevented, and except in cold weather, or in very wet weather, they are exceedingly uncomfortable. They are most valuable in protecting the body from rain and snow, but are unsuitable, as a rule, for any other purpose.

Occupation

It is rational and desirable that human beings, when in health, should have continuous and useful occupation. It is by no means a misfortune that for the majority of people occupation is a necessity to existence. An idle life, if not mischievous, is at least very selfish; and when we realize the brevity of life, and the great number of helpless and suffering ones who need assistance, it seems entirely inexcusable. An occupation may be the means of promoting health and longevity, or it may certainly result in disease and early death. What a pity that, in order to sustain life, so many poor mortals must engage in pursuits that inevitably bring their life to a premature close. Out-of-door occupations, even if laborious, are not usually unhealthful; farmers, mechanics, teamsters, sailors, if they observe ordinary precautions, are wont to enjoy rugged health. On the other hand, those who work indoors are more susceptible to disease; hence, factory hands, tradesmen, even professional people, unless their indoor life is compensated by sufficient out-of-door exercise, are deficient in physical endurance.

Muscular exercise and an abundance of fresh air seem to be the principal factors in determining physical well-being. For those whose life must be passed indoors to a large degree, it is therefore desirable that physical exercise should be constantly cultivated. It may consist in walking, riding, rowing, athletic games, gymnasium exercise, or a variety of other useful measures. Unless something of this kind is systematically pursued, it will be very difficult to maintain uninterrupted good health.

The daily bathing of the entire body is especially useful for indoor workers. The skin disposes of much of the waste material of the body. Those who are constantly engaged in out-of-door work usually find that the skin readily responds to the task which is imposed upon it, and the general activity of the organism also encourages easy performance of function of the other excretory organs, the lungs, kidneys, and intestines. The indoor worker is often deprived of this constant stimulus, and the daily bath will be of assistance in keeping the skin in condition to perform its necessary work. Its temperature must be largely a matter of choice. The indiscriminate use of cold baths is neither wise nor satisfactory.

Recreation

Amusements, aside from physical exercise, are not to be neglected; music, the drama (when it is clean and instructive, which unfortunately is often not the case at the present time), interesting or amusing lectures, various indoor games, and many other forms of wholesome recreation are useful adjuncts in the consideration of the means for promoting health.

Occasional vacations have a most important sanitary value. No one who has followed the development of the movement for giving brief periods of rest during the summer, whether by the seashore, at the mountains, or in the country, to our tired and sick men, women, and children of the city, our brethren and sisters, especially to the poor, and those whose homes are not very bright or cheerful, can fail to realize what this means, even from the physical standpoint. If the employers and capi-

talists were to look at this matter only from its economic standpoint, divesting it of its sentimental side if they chose, they would find that they would realize large returns for all investments which they might make in country homes and vacations for their employees. An occasional change of scene, a brief respite from work, and an opportunity to develop acquaintance with the beautiful things in this beautiful world in which we happen to be staying for the present, is a tonic which I would like to prescribe for every tired worker in whatever field.

One of the most imperative requirements for health is sleep and an abundance of it. In some cases, and in certain conditions, it is more essential than food. We can learn useful lessons in this direction from the animals. A sick cat or dog refuses food, goes into an out-of-the-way place, curls himself up, and sleeps perhaps twenty-four hours or more, and when he awakes it often happens that his sickness has disappeared.

Children with rapidly changing, ever-developing tissues, need many hours of sleep—ten or twelve daily. Those whose lives are active, with whom there is great muscular exertion every day, those who are worried and harassed with care or sorrow, those who are strained and weakened with pain, realize, more than others, the inestimable boon and blessing of sleep.

> "Sleep, that knits up the ravel'd sleeve of care,
>
> . . . . . .
>
> Balm of hurt minds, great nature's second course,
> Chief nourisher in life's feast."

It is often said that the antidote for physical fatigue is change of occupation, mental employment, or a change of mental employment furnishing occupation for another set of faculties while the tired ones are resting. This may be applicable to some people, but the writer has observed very few of them.

It is useless to improve upon this elixir of sleep, and it will usually be found an unprofitable undertaking to try and cheat nature out of her dues in this regard by any subterfuges or substitutes. Seven to nine hours of quiet sleep out of each twenty-four for adults in good physical condition will give good

equipment for the recurring struggles and labors which each day may bring.

It would seem probable, *a priori*, that the aged, with enfeebled powers of mind and body, would require more sleep than those whose powers are active and vigorous. This may be so in many, perhaps in the majority of instances. A lethargic, inactive condition in the aged is common, from which the transition to sleep is easy and natural. It very often happens, however, that aged people do not require so many hours of continuous sleep as those who are younger, three or four or five hours at night sufficing, with perhaps an hour or two during the day. It would be an interesting subject to speculate about, and could be explained on physiological grounds.

Diet

Equal in importance with almost any of the questions which have been discussed in connection with personal hygiene is that of diet. The question for civilized man not only is, How much shall I eat? but, What shall I eat? and physiology and chemistry have been giving very exhaustive answers during many years of investigation. We are not considering the man who eats everything within his reach which is eatable, or which he assumes to be eatable, but the one who has a certain amount of intelligence, and who realizes that some articles of diet may be more useful to him than others.

It seems hardly necessary to say that infants and young children are not provided with organs to digest the same or the same quantity of food as adults, and when they are fed from the common family table, as is often the case among the poor and ignorant, it is not strange that only the fittest survive. It would be startling if the facts were known as to the thousands of children who are annually killed by improper food. Food for the young is, therefore, not necessarily appropriate for the mature, and vice versa.

The fundamental object of food is the production of heat and vital force, and it is quite analogous to the production of heat and force in an engine by means of fuel. Food is not required to the same extent in summer as in winter. In a cold

climate the activities of the body are greater than in a warm one, more heat is required and is developed, and hence more food is necessary. It is also necessary to select for cold weather those varieties of food which have great heat-producing capacity, and which would be quite inappropriate for warm weather. Hence diet must be modified by climate as well as by age. The work which one must do should modify the diet; the lumberman, the sailor, the miner require different food and more of it than the shopkeeper, the clerk, the teacher, or the lawyer. Both the quantity and the quality of the food must also be regulated by the physical condition in a given case. A robust person requires more food than a sick one, and he can eat, without fear of harm or indigestion, many forms of food which the stomach of the sick person would be unable to digest or would reject promptly.

Many series of physiological experiments have been made, both upon man and animals, to determine the most useful substances which may be employed as food, and it has been definitely determined in the case of a large number of substances, just how much can be expected in the way of useful results when they are used for food.

We learn from the study of physiology that the stomach digests only albuminoid substances (lean meat, eggs, milk, and certain portions of the cereals), and that the intestines, aided by the liver and pancreas, digest only the hydrocarbons (oils, fats, butter, potatoes, rice, and the greater portion of many of the vegetables); therefore, while it might be possible for a person to live upon food which was digested only by the stomach, or only by the intestines, at least for some time, it would be, to say the least, an unfair distribution of work to impose all upon the stomach, or all upon the intestines. The obvious conclusion would be that a diet should be composed of both albuminoids and hydrocarbons, and this conclusion is fully borne out as the result of physiological experiments. That is to say, a mixed diet, meat, eggs, milk, and vegetables of different kinds, is not only the most rational, but the one which is best adapted to secure health and the highest results in the direction of physical and mental work.

It may be interesting at this point to consider briefly the nutritive value of some of the substances which are commonly used for food. Of these substances milk is first in importance, for it is not only a product which is derived from all mammals, but it is a universal article of food with the entire human race. It is the typical food substance, because it contains water, which is the most essential element in the body; caseine (cheese), which is the albuminoid element, and fat (butter) and sugar, which are the hydrocarbons. These essential elements are always found in milk, no matter whether it be obtained from human beings or from any other variety of mammals.

Wheat is perhaps next in importance to milk, and has often been termed, in the form of bread, "the staff of life." It contains albumen, starch, and mineral substances, and is therefore perfectly adapted to sustain life. One could live indefinitely on bread and water, even though such a diet might be very monotonous.

Eggs form an important portion of human food, but they consist largely of albumen, and, therefore, are not suited exclusively for a substance of food. They are important and almost indispensable as an *element* in diet. It should be remembered that eggs cooked are more difficult to digest than eggs uncooked. The error is often made of giving cooked eggs to the sick, or to those who are beginning to convalesce from severe illness. At such a time the gastric juice is deficient in quality and quantity, as a rule, and is unable to attack this concentrated mass of albumen successfully. Hence it must not cause surprise if it is brought up again in a hard lump, or after causing abundant pain, passes downward and is finally expelled from the lower end of the alimentary canal, still practically undigested.

Meat, or muscular tissue (and this includes the muscular tissue of fish), is quite essential as an article of diet. It is not indispensable, for many human beings do not use it and thrive without it. Lean meat is classed among the albuminoids; animal fat is, of course, a hydrocarbon. The digestibility of different kinds of meat varies greatly. Beef, mutton, and the white

meat of fowls are the most readily digested and assimilated. Pork, the dark meat of fowls, game, and fish are less readily digested. Soups, when prepared from both fat and lean meats, are naturally less easily digested than those which are made from lean meat alone.

The cereals, oats, rye, barley, corn, etc., have a very important value. They consist largely of starchy material (hydrocarbons), but also have a certain percentage—varying in different specimens and different grains—of vegetable albumen, so that they have the possibility of forming the principal portion of the nutriment of large portions of the human race.

Rice and potatoes consist very largely of starch. The former is the principal article of diet of the majority of human beings, and its results in vital force, especially among the myriads in China, India, and the tropics, are indeed remarkable. Probably climate and race act as very important factors in determining these results, however. In Ireland and in South American countries in which the potato is indigenous, this substance, though almost exclusively starch, constitutes the bulk of the food. The results, especially in Ireland, often show the disadvantages of so exclusive a diet. Peas and beans contain a large portion of starch, but they also contain considerable vegetable albumen, which gives them great value as food. The nutritive value of some of the fruits and nuts (for example, cocoanuts and bananas), though they consist mostly of starch and sugar, is very great. Many other fruits and vegetables consist very largely of water with some starch, fat, sugar, and very palatable vegetable acids. They give variety to the diet, are often mildly laxative to the bowels, and therefore play a very prominent part in the mixed diet. The fruit of the olive tree is a conspicuous example of the great utility of a vegetable product.

Tea, Coffee, and Their Substitutes

The value of tea and coffee, so far as their active principle (theine, caffeine) is concerned, is alike for each, since the molecular construction of each is the same. Tea contains tannic acid, which gives it its astringent property, and explains the

constipation which is so common with those who take much of it, especially if it is taken in very strong or concentrated infusion. Tea is a leaf, coffee is a berry or fruit; and the latter contains more starch, which is an essential product of all growing plants, than does the former.

The value of tea and coffee is due largely to the heat of the water with which they are usually taken in the form of an infusion. The starch value—that is, the nutritive value—is very small, but the influence of the active principle (theine, caffeine) as a stimulant to the heart and the nervous system is very great. When one is cold and wet, or weary with severe exertion, a cup of hot tea or coffee, with its generous warmth and its whipping on of exhausted nerve centers, banishes bad feelings for the time and revives drooping energies.

It is not usually desirable to give such substances to children. The depression which comes from fatigue and exposure is quickly rallied from, if only they can be warmed and dried, and the surface of the body actively rubbed for a few minutes. The use of tea and coffee by children, unless in a very dilute form, over-stimulates the sensitive nervous system, and will comparatively seldom be found necessary.

Alcohol and Tobacco

A great deal might be said in this connection in regard to alcohol, but the object of the book is not controversial, and space is wanting to give fair show to both sides of the question. Nobody doubts the enormous injury to the human race from the use of alcohol. Whether it is food or not, does not concern us now. That it is a poison, no one who knows anything about the subject will deny. But we are constantly using poisons, and often become entirely habituated to their use, without apparent harm either immediate or remote. This practice will probably continue to the end of time, for nothing has as yet been discovered or conceived of which would act as a substitute for many of the poisons which are in use. The great thing is to use them with intelligence, and when they are required. In connection with individual hygiene it is proper to say that tip-

pling, that is, frequent drinking of alcohol in any form, merely for the sake of drinking, or for its so-called encouragement of sociability, is unnecessary, expensive, and ought to be discouraged. Every physician of experience knows that there are constantly recurring instances when the prompt use, or the continued use, of alcohol in a suitable form may save and prolong life, but one does not usually resort to a liquor saloon to procure the alcohol for such purposes.

Much the same line of reasoning that has been used in regard to alcohol would also apply to tobacco, looking at it from the hygienic standpoint. Tobacco, however, is a narcotic, while alcohol is a stimulant; the former soothes or depresses, the latter stimulates. With many, especially those whose work keeps them out of doors most of the time, tobacco seems to have no bad influence, and they may even smoke the rankest and vilest of pipes, and the coarsest and strongest tobacco, without apparent harm, and with very decided manifestations of enjoyment. The effect of tobacco as a poison is to weaken the heart action. Collapse attends its poisonous effect, with nausea and purging. Who that has had a struggle in trying to master its discomforts does not remember the gruesome feelings, the unhappiness, and the resolve to let it alone in the future which have accompanied the undertaking; and how many are there who have not courageously renewed the attack, forgetful alike of past suffering and good resolutions, until the enemy was conquered?

It is difficult to define moderation in the use of tobacco. The term is wholly a relative one, depending upon the physical condition of the individual, his occupation, the quality of the tobacco, etc. The use of cigarettes in such excessive quantities as obtains with foolish persons, and especially with the young and immature, is reprehensible. The evil effects of such habits, and the immoderate use of many good things, upon many young men, are too obvious to call for any argument or any possible consideration in their favor. On the other hand, a cigarette of honest tobacco, untampered with by reckless manipulators, is lighter and safer to smoke than the average cigar, and also has advantages over the pipe.

Importance of Cooking

Not only the palatability, but to a large degree the usefulness, of food depends upon the care which is exercised in its preparation. Certain kinds of food require no preparation, but are palatable and nutritious as provided by bountiful nature. Many of the fruits, and not a few vegetables, may be included in this category. Other vegetables, cereals, etc., must be ground, baked, boiled, fried, or otherwise subjected to the action of heat before they become suitable or attractive for food. This operation in which the action of heat is invoked, which we call cooking, is a most important one. It develops certain odors or flavors which are agreeable both to the sense of smell and that of taste, making the food more palatable and in many cases more digestible; it coagulates albuminous material, and with some substances it produces chemical changes which promote their nutritive value.

Of particular importance is it that animal tissue should be submitted to heat before it is used as food. Certain very troublesome parasites are found in the muscles of animals (for example, trichinæ in swine), and the habit of eating this tissue uncooked has led to countless cases of disease, every one of which could have been avoided had the meat always been cooked. Oysters and clams are also not infrequently the bearers of disease germs, and the friend who places them in tempting array before us may little realize the danger to which he is exposing us, or possibly the disaster which he unwittingly invokes.

Condiments and relishes are often useful in giving piquancy to the taste of food, and often assist digestion by their stimulation of the gastric mucous membrane.

The effect of salt, pepper, mustard, cloves, allspice, etc., is too well known to require comment. Gravies and sauces in which fat and grease form the principal element are not usually to be commended. If the digestive function is weak, they will usually add an unnecessary burden to it.

Care of the Teeth

The best way to treat disease is to avoid those habits and methods and substances which produce it. Equally pithy and equally true is somebody's remark that to cure a certain disease in a certain family, he should have been allowed to go backward and begin with the grandparents. That is, we are now realizing the importance of preventive medicine. In this important science which concerns everybody we should know something of the nutritive importance of the materials from which we select our diet; we should also determine by experiment those substances which are helpful to us, and those which are hurtful. The care of the teeth and mouth in this connection is not to be neglected.

Sores in the mouth must be cleansed with frequent washings with weak solutions of boric acid (teaspoonful in a glass of water), carbolic acid (one part to one hundred of water), or bicarbonate of soda (teaspoonful in a glass of water).

The teeth should be brushed with a stiff brush night and morning, with or without the use of a dentifrice (powdered chalk with myrrh added). Food should not be allowed to collect between the teeth, a quill toothpick being used to remove it. The dentist should be visited sufficiently often to keep decayed teeth under control, and to secure the removal of those which are beyond repair. One can scarcely realize the harm to the digestive apparatus from decayed teeth and sores in the mouth. Offensive breath from this cause, or from any other, should be investigated and removed, not only because it is an evidence of injury and ill-health, but because it gives discomfort to others.

Disinfection

If the statements that have now been made are true, this section upon hygiene would not be complete without some reference to the various methods of disposing of the germs of disease which have been liberated in the atmosphere, absorbed by water, and which have settled upon the walls of houses, upon articles of furniture, clothing, etc.

Many of these germs are exceedingly tenacious of life; they may remain inactive a long time, even though they do not develop and grow. Some of them will live even in a medium which is without air, but the most of them, it is believed, require air like other forms of life. Some of them bear a temperature below the freezing point without discomfort and are often found in ice; none of them will endure a temperature above the boiling point for any length of time. Most of them will succumb to powerful chemicals like sulphur, chlorine, mercury, and formaline.

Food which is thoroughly baked or boiled is not a source of trouble from disease germs, but it does not interfere with the work of germs which are already in the alimentary canal, and their treatment can hardly be undertaken until they have manifested their presence by some disturbance in the individual affected. Raw food is always taken with risk; it may be disinfected with chemicals, but this is usually inconvenient. It may be thoroughly disinfected with heat—that is, by cooking. Water, which is boiled or distilled, is free from germs; also artificial ice, which is made from distilled water. Five or ten drops of dilute hydrochloric acid in a glass of water will sterilize it sufficiently, and the acidulous taste of the water will not be objectionable to most people.

Milk is so important an article of food and so often a source of disease from the bacteria which it contains, that a few words concerning its disinfection or sterilization are demanded. Prolonged boiling of milk destroys its germs, but it also coagulates its caseine, and makes it more difficult to digest. There are several excellent forms of apparatus on the market (Soxhlet, Seibert, and others) for sterilizing milk when used as food for infants, which may be adopted with safety.

Pasteurization of milk consists in subjecting it to heat from 158° to 176° F. for half an hour or longer, and then rapidly cooling it to 54° F. or less. This will destroy, or render inactive, the bacteria which it may contain, but will not coagulate the caseine.

Those who, as nurses, doctors, or assistants, have attended the sick with the eruptive diseases—measles, scarlet fever,

smallpox, whooping cough, diphtheria—or even tuberculosis and typhoid fever, and in general any form of sore or injury which is accompanied by suppuration and blood poisoning, should wear special clothing for that purpose, which should be worn nowhere else, at least not until it has been boiled, washed, and ironed.

Books, clothing, and the various small articles in the sick-room which have been exposed to infectious disease, may be baked at a temperature equal to the boiling point of water; but as this is not always easy, and involves the risk of destroying that which is put in the oven for the purpose, the better way may be to subject the infected material to the action of chemical vapors.

All the efficient chemical disinfectants are irrespirable in the state of vapor, and hence the disinfection must be effected in a closed room which is unoccupied at that time. Chlorine is a valuable disinfectant, but it also removes the colors of substances which it attacks.

Formaline has recently been introduced, and has been found very effective as a disinfecting agent. It does not injure nor decolorize substances. There are various lamps on the market which are used for liberating this gas from wood alcohol. There are also metallic boxes, not very expensive, in which a large number of articles can be placed and then disinfected with formaline vapor.

Those who attend the sick, not less than the sick, should disinfect themselves after exposure. Alcohol is one of the best disinfectants, and the daily sponge bath for the entire body of one who has an infectious disease is both agreeable and useful. If the skin peels or scales, the sponge bath should be followed by inunction with fresh (that is not rancid, this being important) cocoanut oil, which will not only soften the skin, but prevent the loosening and flying of scales.

For those who attend the sick the daily bath should be a custom. If the disease is infectious, an antiseptic soap (formaline, mercury, or even plain castile) should be freely used, and especially upon the hair, the hands, and the nails. The latter should be kept closely pared, rigorously clean, and a stiff brush

used frequently to the spaces around the nails. Dirty hands, finger nails, and instruments are responsible for much of the disease which ought never to occur.

A room which has been occupied by a person with an infectious disease should in no instance be used again until everything in it, and better still, everything in the house, has been disinfected. In most of our cities the board of health will attend to such matters, but in villages and in the country, it must be done by individuals. Carpets and curtains, also all bed coverings and mattresses, must be steamed for an hour or longer until every inch of surface has been thoroughly permeated. Inexpensive articles of furniture, especially when old and dilapidated, also straw beds, old coverings, etc., should be destroyed by fire. Walls, ceilings and floors may then be scrubbed, if they will admit of such treatment, with hot bi-chloride of mercury solution (one of mercury to one thousand of water). Windows and doors must then be closed and formaline vapors liberated into the room for an hour. This method is preferable to burning sulphur in the room; it is more effective and the odor is less persistent. The room should remain closed for twenty-four hours; it may then be opened and aired and used again with safety.

The proper rule to follow in these days, when we know the terrible possibilities from the spreading of infectious disease, is to take all necessary precautions which are available, resting reasonably assured that if we do, the disease cannot be extended through fault of ours. There is little excuse for ignorance in such matters; in fact, ignorance becomes a crime, for it need not exist.

RULES FOR HEALTH AND BEAUTY FOR GIRLS*

By MARTHA FOOTE CROW

BODILY CARRIAGE

Hold the head erect.
Keep the chest high.
Hold the abdomen in.
Rest the weight of the body on the balls of the feet.
Keep this position constantly, by day and by night.
When lying down, stretch out; do not curl up.

EXERCISE

Make a special study of the proper times for exercise and take a normal amount of it at those times.

Let nothing induce you to undertake severe bodily work or strain when the body is not in a condition to sustain the strain.

When all conditions are right for it, take a good deal of joyous exercise.

Learn some systematic exercises and practice them every day.

Systematize the exercise in housework as far as possible and supplement it when needed by long walks and hill-climbing.

CORRECT BREATHING

Take long breaths of fresh air on rising and frequently through the day.

* From "The American Country Girl," by Martha Foote Crow, published by Frederick A. Stokes and Company, New York. Used by permission of the author.

Breathe always through the nose and from the diaphragm.

Keep the air in the room fresh by day and by night.

Breathe deeply to keep the mind clear, the blood pure, and the spirits buoyant.

CLOTHING

Let the weight of clothing hang from the shoulders.

Have the clothing loose enough to allow free play of the diaphragm in breathing and of the limbs in exercise.

Protect the feet and ankles from exposure to wet and cold.

Keep the chest well protected but do not over-wrap the neck.

FOOD AND EATING

Have meals absolutely regularly and at proper intervals.

Choose foods adapted to present needs. Study adaptation of foods so as to know how to choose.

Drink at least six glasses of pure water daily, between meals.

Always think and speak of something pleasant while eating.

ELIMINATION OF WASTE

Free the body from poisonous waste by keeping the bowels active.

By keeping the pores of the skin open.

By using a great deal of well-planned, vigorous exercise.

By general cleanliness.

CLEANLINESS

Take a cold tonic sponge or shower bath every day when in good health.

Take a warm cleansing bath once or twice a week.

Keep the mouth and skin free from dirt and germs.

Give perfect care to the hair and the finger-nails.

Wash the hands before eating or serving food.

Brush the teeth at least twice every day—on rising and on retiring; after every meal is better still.

Avoid gathering or spreading disease germs through any form of contact.

AMOUNT OF SLEEP

Ten and one-half hours (8:30 to 7:00) for those 10 to 14 years old.

Ten hours (9:00 to 7:00) for those 14 to 16 years old.

Nine and one-half hours (9:30 to 7:00) for those 16 to 18 years old.

Eight hours (10:00 to 6:00) for those 20 to 30 years old.

Lost sleep must invariably be made up.

Try to go to sleep happy.

REST

When you work, work efficiently; when you rest, rest efficiently; whatever you do, do it with all your might.

When resting, relax perfectly; let go.

Stop worrying; think of something else; think of something cheerful.

Do not yield to impatience or to anger; they shorten life.

Think pure and beautiful thoughts; learn the beautiful thoughts of others and say them over till they become your own.

Cultivate a well-balanced mind; preserve courage and cheer.

PREVENTION OF ILLNESS OR OF A DEPRESSED STATE OF HEALTH

Study the laws of hygiene and of sanitation.

Avoid patent medicines of all kinds.

When ill, consult a reliable physician.

Prevent illness by following the laws of health and by regular health examinations.

FIRST AID TO THE INJURED*

Edited by F. B. KILMER

The First Things to Do in Accidents

Keep cool. Send for physician at once.

Move the patient to a quiet, airy place.

Keep by-standers at a distance.

Handle the patient gently and quietly. Place him in a comfortable position. Unless the head is injured, have it on the same level as the body. Loosen the collar, waist-band and belt.

If the patient vomits, turn him on one side with the head low.

If bleeding, stop at once. (See Bleeding.)

Cover and dress all wounds immediately. (See Wounds.)

Bleeding

Bleeding From Slight Wounds.—Cover with surgically clean gauze. Bandage firmly.

Bleeding From Veins.—Blood is dark red, flows freely from the wound but does not spurt.

Lay patient down. Loosen tight clothing, garters or straps. Elevate wounded part. If severe, press on wound with hard pad of clean gauze. Apply cold by means of ice. If this does not stop bleeding, apply tight bandage near wound, on side farthest from heart.

In stopping bleeding by pressure, remember that flow of blood in veins is *toward* the heart; in arteries *from* the heart.

Bleeding From Arteries.—Blood bright red color, comes in spurts.

There is great danger. Act quickly. Send for surgeon.

Lay patient down, cut away clothing and expose wounds.

Elevate wounded limb. Press with thumb or finger covered with surgical gauze or clean towel on or into the wound. Replace this by crowding gauze into wound and hold it with tight bandage.

If artery passes over bone, press there with fingers.

If bleeding does not stop, compress arteries with tight bandage near wound, between heart and wound.

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*From "First Aid to the Injured," edited by F. B. Kilmer. Published by Johnson and Johnson, New Brunswick, New Jersey. Used by permission of the editor.

When bleeding is stopped, give hot drinks of tea, coffee, or milk.

After bleeding has been stopped, cover the wound at once with surgically clean gauze and bandage. A soiled covering is worse than none at all, and may cause blood poisoning. Keep patient absolutely quiet.

If tight bandage constricting the limb has been applied, release it slightly, so as to restore the circulation of blood.

Fainting From Bleeding.—Lay patient down with head lower than body, see that he has plenty of fresh air to breathe, loosen all tight clothing from waist up. Keep limbs elevated; apply warmth. When again conscious attend to any bleeding that occurs; give hot drinks.

Bleeding Don'ts

Don't use lukewarm water to stop bleeding—it only increases it. Use either ice, ice-cold water, or water as hot as can be borne.

Don't apply cobwebs, tobacco, mud, or other styptics to stop bleeding.

Don't give stimulants to bleeding patients.

Don't put bare fingers into a bleeding wound.

Don't keep tight bandages applied longer than necessary.

Don't apply any dressing or bandage except surgically clean ones.

Wound Dressing Hints

Send for a surgeon.

Do not touch the wound with bare unclean hands.

Arrest bleeding.

Do not disturb blood clots.

Remove foreign substances when it can be easily done.

Never probe for a bullet.

Do not wash wounds with water only, though supposed to be clean.

Bring the edges of the wound together.

Cover the wound as quickly as possible, using such materials as are found in First Aid Outfits.

Keep the part quiet with a sling or splint.

Rest is essential to the healing of wounds.

Poisoned Wounds

Snake Bite.—Don't stop to kill snake.

Tear open clothing and expose wound quickly.

Bandage limb tightly above wound partly to stop circulation.

Open the holes made by the snake's fangs with a sharp knife. Cut outward and lengthwise of the limb. Let the blood run from the knife-cut. Sucking the wound, expectorating the poison, answers the same purpose, but less effectively.

Get patient to surgeon as soon as possible. Keep pressure applied.

Bites of Dogs, Cats, Etc.—First wash with Synol Soap or Camphenol solution and apply hartshorn. If the animal has been sick, treat these wounds the same as snake bites. Get case in surgeon's hands speedily.

Insect Bites and Stings.—The sting of a centipede or a scorpion and the bite of a tarantula and often of the spider are of serious character and require prompt treatment like that for snake bite. Treat antiseptically and call a surgeon. The sting of a bee, wasp, or hornet is usually left in the wound and should be removed if it can be found. Then

apply hartshorn, baking-soda solution or salt water. Such solutions also will relieve mosquito bite.

Toy Pistol Wounds.—These and other wounds from fire-crackers, small cannons and fire-works require thorough washing with Synol Soap or Camphenol solution. Cover with antiseptic dressing and put case in surgeon's hands at once.

Broken Bones—Fractures

Fractures may be recognized by pain at a fixed point, the sound of a crack, mobility of limb at a point immovable before and irregularity of the bone surface at the painful point.

A simple fracture is one where the bone is broken but the skin is not pierced.

A compound fracture is one where the bone is broken and there is an opening from the outside air to the break.

Make patient comfortable; put limb in splints before attempting to move the patient.

For simple fractures nothing but putting the limb in splints is necessary.

For compound fractures, first bind up the wound and stop bleeding. Then put limb in splints.

In all fractures remove clothing from the injured part, preferably by ripping up the seams.

Always handle the fractured limb carefully.

Lay injured limb upon splints well cushioned; bandage splints firmly so that fragments of bone will not move on each other. If fracture is compound, i.e., accompanied by a wound, put gauze next to the wound; cover with an absorbent cotton pad, then with bandage, and put limb in splints as in simple fracture. Do not bind splints directly upon the wound.

In all fracture cases after splinting carry the patient to a physician on a stretcher, not in the arms.

Splints.—Splints can be improvised from any handy material.

Splints should be long enough to reach beyond joints on both sides of fracture, and always well padded. In splinting, have two splints, one on each side of the limb; one bandage will hold both.

Small splints may be made from bunches of twigs, pasteboard cut from boxes, pieces of lath or shingle, desk rulers, or other rigid articles.

For large splints use barrel staves, broom handles, umbrellas, canes, tool handles, fire tongs, bayonets, swords, ram-rods or rifles.

For padding, absorbent cotton is the best material. To improvise padding use grass, straw, soft cloth or soft garment.

For binding, use the triangular bandage found in First Aid Packets. To improvise bandages use handkerchiefs, towels, garters, cords, suspenders or straps.

For slings use the triangular bandage. To improvise slings use towels, handkerchiefs, ripped coat sleeve, front of coat, or skirt turned up and pinned to breast, thus forming a pocket for the arm to rest in.

Dislocations

Bones out of joint. This injury is best distinguished from fracture by the inability of patient to move the limb.

Don't attempt to set dislocated parts, except the most simple cases. Send for the surgeon.

Place part in position easiest to the sufferer, supporting it on pillows or pads. Apply hot wet cloths.

Simple dislocation of the finger can often be reduced by strong pulling on the finger and pressure on bone at joint to get it in place. When in place bind finger, not too tight, with bandage or strip of "Z O" Adhesive Plaster.

Sprains

A twist or wrench at the joint. Intense pain and rapid swelling.

Sprains are not such slight injuries as often imagined. A surgeon should be consulted in every case.

The most important thing is absolute rest. Handle a sprain as little as possible.

Ankle or Foot Sprains.—Wrap in folded gauze or towel and immerse in a bucket of hot water, adding more water from time to time as hot as can be borne, from 20 to 30 minutes. Then bandage evenly and tightly and keep limb elevated.

Wrist Sprains.—Wrap same as in ankle sprains and apply hot water continuously for one-half hour; then bandage and splint; support in a sling.

Burns and Scalds

Carry patient to a place of safety. If severe send for surgeon. Remove clothing from burns. Let the water out of blisters by piercing them low on side with point of needle that has been passed several times through a flame or washed in antiseptic solution. Cover burns to exclude air. Never hold a burn to heat.

Slight Burns.—Apply solution of common baking soda (sodium bicarbonate), made by dissolving in water as much baking soda as the water will take up. Cover with clean gauze cloth.

Severe Burns.—Remove clothing by ripping up seams and cutting away; if clothing sticks around burned part, wet with warm water or oil. When extensive, quickly dress a little at a time, exclude air by covering surfaces.

Remove patient to a cool place, apply sweet oil, carbolized petrolatum, lard, olive or carron oil (equal parts of linseed oil and lime water), vaseline or white of an egg.

In absence of oils, dust burned parts with starch or flour. If nothing else is at hand use moistened earth or clay.

Get burns covered as quickly as possible. The best means of applying oils is to dip the gauze cloth into the oil and lay it upon the burned surface. Vaseline or other grease should be spread thickly upon the gauze.

Then cover the gauze dressing with layers of cotton and bind all loosely with triangular or ribbon bandage.

Shock usually accompanies severe burns and should be treated accordingly.

Scalded Mouth or Throat.—Apply either of the oils or white of egg by drinking them.

If Clothing Catches Fire.—Throw person down, wrap him in a rug, coat or shawl, roll him on the floor until flames are extinguished.

Burns from Caustic Lye or Strong Ammonia.—Flood with water, then with vinegar and then treat as if burned by fire.

Burns from Acid.—Flood with water and wash with solution of baking soda.

Lime in the Eyes.—Flood with water and bathe with diluted vinegar or lemon juice.

Sun Burns.—Cover with baking soda, vaseline or oil, bind with cloth.

Frost Bite.—Rub frozen parts with snow or bits of ice, or put into cold baths. Afterward rub with cloth wet with warm water, whiskey or alcohol.

Unconsciousness, Etc.

Sunstroke.—Remove to shady place. Lay patient down, head level with body and loosen tight clothing. Pour cold water over head and face. Rub body with pieces of ice. Apply heat to extremities.

Fainting.—Lay patient flat and loosen tight clothing around neck, chest, and waist. Allow free access of air. Bathe hands and face with cold water. When conscious give tea, coffee, aromatic spirits of ammonia, one-half teaspoonful to half glass of water.

Fits.—Kneel by patient, put one arm under his head and with the other hand undo his collar.

Place the handle of a pen-knife or any hard substance in a handkerchief and put between the teeth to prevent biting the tongue.

Do not restrain his movements. Do not give anything to drink.

Unconsciousness.—Lay patient flat, head slightly raised. Apply cold water to head. Keep body warm. Apply hot water bottles to soles of feet. Give no stimulants.

Concussion or Stunning.—Proceed as in fainting.

Hysterics.—Do not restrain patient, nor sympathize with him in any way. In many cases the patient will recover best if left entirely alone.

Mustard plasters may be applied to soles of feet, wrists, and palms of hands.

Foreign Bodies in Eye, Nose, Ear, and Throat

Foreign Bodies in Eye.—Do not rub the eye. Keep it closed and let tears gather to wash substance to corner. Do not use a handkerchief. First try to remove with a piece of surgically clean gauze. If not possible to wipe out the substance from the eye, blowing the nostril at the same side is often effective.

If body is under lid, pull lid up, and with a wisp of clean gauze or absorbent cotton twisted on the end of a match it may be removed.

Whether you get the substance out or not, put into the eye a few drops of vegetable oil (sweet oil, etc.). It is generally unnecessary to bandage the eye.

Foreign Body in Nose.—Blow the nose hard, holding opposite nostril. Excite sneezing.

Have patient take a full breath, then give a sharp blow on the back between the shoulders.

In a child, such an obstruction may be removed by blowing into opposite nostril or into the mouth.

Foreign Bodies in the Ear.—For immediate relief put a few drops of warm oil into the ear.

Never probe for it with wire, needles or pins. Send for a surgeon.

Live insects which get into the ear will usually withdraw if ear is turned to a strong light.

Foreign Bodies in Throat.—Send for surgeon. Make patient cough by slapping him on the back. Bend him forward, face downward.

If object is not dislodged thus, then press two fingers back into throat so as to grasp it; this may be successful even by causing patient to vomit forth the object.

Artificial Respiration

Clearing the Throat.—Clear the air passages of water. To do this, lay patient, face downward, over a barrel or log, or else clasp your hands under his belly and raise him. Follow with artificial respiration.

First try tickling the throat with a straw or feather. If tickling the throat fails, perform artificial respiration. While you work send for blankets, bottles or jugs filled with hot water. When blankets arrive wrap around patient from armpits down and put the hot water bottles about him.

Artificial Respiration.—Turn patient on his back with coat rolled up under shoulders. Let head drop backward. Remove tight clothing.

Pull out his tongue, and keep it out by tying it to lower jaw. This may be done with a handkerchief crossed under chin and tied back of neck; or else thrust a long pin through the tongue, being sure it is long enough to rest against the teeth and keep the tongue out.

Kneel at his head, grasp his arms just below the elbows, draw his arms outward then upward to sides of head and hold in this position about two seconds. This expands the chest and produces inspiration. Bring his arms down along his sides in front of chest, and press elbows inward firmly on lower ribs and side. This drives air out of lungs.

Alternate these movements slowly about fifteen times per minute. Continue for at least one hour in the attempt to restore breathing. Apply ammonia or smelling salts to the nostrils at intervals.

After patient commences to breathe naturally—but not before—his limbs should be well rubbed toward the heart under the covers.

Do not be easily discouraged. Life has sometimes been restored after several hours' work.

Give stimulants, cautiously. Give warm fluid nourishment.

Emetics—Stimulants

In most cases of poisoning, the real important step is to empty the stomach. The readily available means of producing vomiting, here given, may be employed while waiting the physician's arrival.

Do not hesitate to thrust the forefinger down into the throat immediately; follow with a glass or two of warm water. Repeat this process several times.

Give a tumbler of warm water with a teaspoonful of ground dry mustard stirred into it. If not successful in producing vomiting, follow this with a second tumblerful of the mixture, then push the forefinger as far down the throat as possible and keep it there until the patient vomits. The forefinger is one of the best means of inducing vomiting, especially in narcotic poisoning.

Stir a teaspoonful of salt into glass of warm water and make the patient drink it.

Give wine of ipecac or syrup of ipecac every few minutes—a teaspoonful to a child, a tablespoonful to an adult—following each dose with a glass of warm water and then the forefinger.

It is often very difficult to make a person vomit who has taken opium, as the sensibility of the stomach is deadened. In every case of poisoning, never cease your efforts until free vomiting has taken place. Use all the methods mentioned, or any one of them at hand.

Stimulants may be given, particularly in narcotic poisons. If the patient can swallow he should take them by the mouth, providing the poisoning is not due to corrosives; otherwise by the rectum (lower

bowel) or by inhalation. The stimulants administered are those ordinarily used. Strong coffee is of the greatest value in narcotic poisoning, and it may be given either by the mouth or by the rectum. When stimulants are given by the rectum, the amount should be considerably larger than when given by the mouth, and they should be diluted with warm water or milk. Ammonia inhalation should be administered by dropping a sufficient amount on a handkerchief or in the palm of the hand. The bottle should never be held to the nose. When stimulants are given by inhalation, great caution should be used, as they are likely to irritate the inflamed membranes.

Transportation of the Wounded

Where the patient is unable to walk alone, he may be carried by the bystanders making either two- or four-handed seats.

The four-handed seat is made by two persons clasping each other's wrists. Each person's left hand grasps his own right wrist, and his right hand grasps the other's left wrist.

After the hands are clasped together, the bearers stoop down behind the patient, who sits on their hands and at the same time places an arm around the neck of each.

To place the patient on a stretcher, put the stretcher at his head in line with the body. Let the two bearers, on opposite sides of the patient, grasp hands beneath his back and hips, raise him, lift him backward over the stretcher and lower him upon it.

If no stretcher or ambulance is at hand, one may be improvised by turning the sleeves of a coat inside out, passing poles through them and buttoning the coat; a long stretcher may be constructed with two coats.

A broad board or shutter covered with straw or clothing will provide a usable stretcher.

Always test a stretcher before placing a patient upon it.

Do not carry a stretcher on the shoulders, except when going up hill and upstairs.

Avoid lifting over walls, hedges, and ditches; keep level.

Bearers of stretchers must not keep step, right with right and left with left, as in marching. Opposite feet must be put forward at the same time, to prevent the swaying of the stretcher and the rolling of the patient.

Always carry the patient feet foremost, except when going up hill. In case of fractured thigh or fractured leg, if the patient has to be carried down hill, carry him head first.

If a chair is used for carrying, carry the patient back foremost.

HEALTH EXERCISES

HOW BOYS AND GIRLS SHOULD EXERCISE

By BERNARR MACFADDEN

WHAT physical training is needed during the period between boyhood and manhood, or between girlhood and womanhood? The few years between the ages of fourteen and twenty-one are really the period of manhood and womanhood in the making. And the question of exercise during this time is important, not simply as a matter of muscular development, because it is such a large factor in influencing healthy growth, promoting organic vigor and building vital strength.

The most important fact to be considered, first of all, is that boys are of different types of physique and of varying degrees of vital strength, and that girls differ from each other in the same way. And on account of these differences various individuals will require somewhat different programs in the matter of training. What might benefit a robust boy or girl might prove too strenuous for another less hardy. For instance, the tall and slender youth who has "grown too fast" cannot stand too much of a strain, and has no excess of energy to spare. The developments of puberty make their own demands upon the vital forces of the body, and neither the thin and nervous girl nor the "bean-pole" type of youth can afford to go too far in the expenditure of energy through violent or exhausting activities. It is true that they need exercise, more than anyone else, but it should be of the right kind. Exercise in youth is a vital necessity, just as is food. But one can make mistakes in exercise, just as he can in connection with food, and with results equally detrimental.

Again, it is sometimes found that the young man who has grown fast and large seems to have temporarily outgrown his heart and vital organs. Perhaps the heart is for the time

comparatively weak. It may be healthy and sound enough, as a heart, but it has perhaps not kept pace with the rapid growth of the bones and of the body generally. And so it would be unwise for this young man to undergo the same strain that might easily be endured by an older man of the same height or weight, but who has slowly but fully matured and has thus developed his full measure of organic strength. Remember that the important point in all cases is not continuously to test out one's strength, and see how much he can stand, but to adopt those measures that will build an increase of strength and energy, and promote the most perfect natural growth of the entire body. Exercise is imperative, but it must be appropriate and should not overtax one during adolescence. It is a fact well known among those versed in track athletics that too much competition during the high school period, in the case of a very promising runner, often tends to rob him of his stamina and prevent his ultimate success in the same field during his later years in college.

Symmetry in Form

The great fault in most cases is lack of exercise rather than an excess of training. The majority of our young "almost men and women" are comparatively undeveloped, being far from a normal standard of symmetry and strength. Even though many of them do take some interest in sports, such as skating, swimming, rowing, tennis, and the like, or ball playing among the boys, yet they do not follow these games or pastimes continuously enough to get the greatest benefit out of them. At the best, they cannot through them get the same superior development that can be acquired by systematic training. All of these open air recreations have the highest value for their constitutional influence. They should be a part of the life of every boy and girl. And in some cases, if there is sufficient variety of them, constantly followed, they may be sufficient for development purposes. But in most cases they should be used in combination with special exercises of gymnastics which are designed to get definite and special results.

The Germans have long had the right idea, making a feature of systematic training. Remember that symmetry of development is desired not only for the sake of symmetry itself, but because it means a more perfect and well-balanced condition, and usually greater bodily efficiency.

For all around convenience, we may consider that the years between thirteen or fourteen and sixteen form the period of puberty, strictly speaking. During this time the young people are still boys and girls, but in the active process of passing from boyhood and girlhood into manhood and womanhood. From this time on, or from seventeen to twenty-one, we may regard, for convenience, as a secondary stage, in which they are really young men and women, although they are still undergoing the processes of growth and development. We will therefore consider them in reference to these two periods of their development. It is true that they continue to grow and mature for a number of years after the age of twenty-one, especially so in the case of the young men, but yet they are really men and women then and capable of enduring much in the way of physical strain and heavy training, if desired, that it would be unwise for them to attempt during their teens.

Growth in Stature

Growth is very active during both the periods that I have indicated, though far more so in the case of girls during the first period, and more rapid in the case of boys during the second period. Between the ages of thirteen and fifteen or sixteen years the girls grow so fast, by comparison, that they are actually larger and heavier on the average than the boys, the only period in their lives in which they have superiority in this respect. But from sixteen on to twenty-one years the development of the girls is no longer so rapid, while the young men continue to grow at a remarkable rate. And yet this growth in either sex is far more rapid in some cases than in others. One, for instance, may rapidly shoot up to his ultimate height and after that very slowly fill out. And in another case the growth in stature is slower, accompanied by the

filling out development during the entire period. The latter is likely to be more vigorous in youth, though very likely not in adult life. But in the first case much vitality is consumed in the process of growth, and there is not much energy to spare. Young people of this type, of either sex, should not be forced too much, either in their school work or in excessive physical exertion, whether the latter takes the form of prolonged and arduous manual labor as on a farm or in a factory, or excesses in athletics. During puberty there are important physiological changes, especially requiring healthful conditions. Along with appropriate exercise there should be plenty of sleep and open air life.

Guard Against Weakness

At this particular time any bodily weaknesses are apt to become prominent, and to be manifested in such defects as weak back, stoop shoulders, spinal curvature, flat chest, weak ankles, tendency to flat-foot and the general faulty carriage that tends to compress the digestive and other organs and interfere with their functions. But also, because of the rapid growth of youth, these conditions yield quickly to the corrective influence of exercise. Those naturally delicate or inclined to be inactive, and thus most subject to such defects, should especially have systematic exercise for this purpose, whether they get other exercise in the form of outdoor pastimes or not. This applies to both sexes alike.

Exercises for Trunk

It is not important at this age to strive for developing the arms and legs, except as such development comes naturally. Rather they should specialize on exercises for the back, chest, abdomen and trunk generally, so as to strengthen the internal parts, acquire a good carriage and overcome any defects. All bending, body twisting and stretching exercises will be particularly valuable at this time for girls as well as for boys.

Such an exercise as sitting on a stool, placing the feet under the piano or dresser, and then lowering the upper body backward, until the head touches the floor, and rising again, would be splendid. Although movements of this nature may not be just the lightest exercise in the world, yet they are such that any ordinary boy or girl can quickly develop the strength to do them. They are very effective, and even ten or fifteen minutes devoted to such work would accomplish great results.

When I speak of avoiding overexertion, I do not mean that the exercise should not be muscularly vigorous. In fact, it is desirable that some of it should be decidedly vigorous. The key-note of success here lies in such moderation as to quantity of exercise that there will be no strain on the vital organs. The exercises may call for real strength, but should not be too long sustained. That is to say, any very vigorous exertion should not be continued long enough to overtax the heart. I realize that in the majority of cases there is practically no likelihood of this, but it is just as well to use discretion in such matters.

Strengthen Internal Organs

To a very large extent the free movements employed, where they are not specially intended for corrective purposes, should simply be vitality building exercises. One cannot give too much attention to strengthening the internal organs. And do not forget that the latter are not only influenced directly by exercise for the region of the waist, the abdomen, the back and chest, but they are very greatly affected by the posture of the body. All movements that tend to improve this, therefore, especially stretching and chest-raising movements, will be advantageous.

Gymnastic Work

But along with such vitality building exercises, gymnastic work on apparatus will be very valuable at this time of life, and as a rule it may be taken up seriously and extensively

when boys reach the age of fourteen or fifteen. As a rule, also, boys at this age are particularly interested in this class of work. It will be useful not only for the shorter and more sturdy types, to whom gymnastics will naturally come easy, but also as a developmental influence for the slender and less robust types. In the same way the girls can profit greatly by this gymnasium work, though it would be well for them to confine themselves to the less extreme types of exercise. In other words, they will do better to use the vaulting horse and parallel bars a great deal, rather than an excessive amount of work on the horizontal bars and rings. They may do the less strenuous class of work even on these, too, but they are not physically equipped for the more exacting "stunts" that trained male gymnasts are accustomed to display. The boys who are rather undeveloped, or long and lanky, with a seeming excess of elbows, knees and pedal extremities, would do well to take up this very apparatus work to overcome their awkwardness and give them coördination, but they should do it gradually rather than to plunge into it too hard at first. They will very quickly acquire the strength and ability to enjoy the gymnasium. I must say that the Y. M. C. A. is a magnificent institution for the boys at this time of life, through the splendid gymnasiums placed at their disposal all over the country at very little expense.

In view of the increasing vogue of athletics, some special comments on this subject will be pertinent. I am afraid that most young people do not realize the need of special preliminary training and a perfected bodily development as the basis for success in this field. There is much truth in the old saying that we learn to do by doing, but this is not altogether true in athletics. Nothing can take the place of special exercises for strengthening each individual part of the body and thus making it capable of standing any strain that may be put upon it. In athletics each part should be in a condition to stand the strain in such a way that it will not be any strain at all, because of the perfect fitness of the body. The athlete who specializes can do much better in his specialty if he is a good all-around man, and has not a single weak point.

Systematic Exercise

What is a strain under conditions of physical unfitness is no longer a strain when properly trained, and the great lesson for the athlete is the value of special and systematic exercises to build up every part of his body. He should gain the maximum of all-around strength before he subjects himself to the strain of specializing in athletics and before he attempts such competition as will test his strength and powers of endurance to their utmost. As a matter of fact, extreme tests of this kind, in athletics or elsewhere, are not desirable before the age of twenty or twenty-two years. Competition should be regulated in such a way as to avoid taxing one's powers to the extreme, while at the same time giving an opportunity to try out one's speed and strength in a reasonable way. It is doubtful for example whether any one should ever try himself out in a Marathon Race before the age of twenty-two or twenty-three years. In athletics there is literally a pace that kills. Schoolboys should not attempt that pace. They should never carry their athletics to a point at which they experience real distress, but if they are properly trained by special exercises they are not likely to have any trouble even in ordinary competition.

Dances

The girls especially will benefit from dances between the ages of fourteen and sixteen, and the folk dances are especially satisfactory in this way. They will benefit both the boys and the girls, but are peculiarly adapted to the needs of the "little women." Other more elaborate forms of fancy dancing and classic dancing, when they can be studied and practiced, are likewise to be recommended.

During the period from seventeen years on to twenty-one years, both boys and girls may undertake more energetic training and also, as a rule, the most vigorous branches of sport. Special exercises for vitality building and general development are just as valuable as before, and should be kept up continuously. Particularly they will be of value to the young

women during these years, as a means of perfecting their development and improving their outlines. Special and systematic exercises will give them clean, beautiful lines and the shapely contour of young womanhood. A firm bust for instance can be absolutely insured by proper training at this time, together with freedom in later life from the many weaknesses common to women. The ultimate bodily development of both the young women and the young men begins to take form and manifest itself during these years.

Average Weight

It is impossible to say definitely just what should be the weight and height of any boy or girl at a specified age. It is possible that a certain individual may at a certain year in youth bear some definite relation to the height and weight and development that he will ultimately attain, but inasmuch as it is impossible to know just what one is destined to become in his maturity, in respect to weight and height, one cannot even venture a guess as to what should be his development at a certain age. Furthermore, the differences in rapidity of growth make any conjecture entirely out of the question. Averages have been made of the height and weight of boys and girls at certain ages, but these averages do not mean that every one must conform to these figures in order to be normal. Again the differences in type and build between the thick-set and the slender make for great variations in height and weight.

COMMON-SENSE PHYSICAL TRAINING

By WILLIAM BLAIKIE

IT is so common among physical trainers to build up a half-built boy, girl, man, or woman, that they find it no harder than it would be to make a fairly bright pupil master French or Latin; or for a good builder to finish a half-built house; or for a wagon-maker to repair a broken-down wagon.

Strangely enough they can point to a famous proof of what can be done in training a boy, not strong, into perhaps the strongest man of his height and weight in all the world to-day; one of the strongest it has ever known.

A jeweler's son, naturally delicate, not a strong boy when at school, Sandow has little by little, by sensible daily exercise, built himself into a giant, able to pick up an ordinary man with one hand, to throw him over his head, and to do many other feats which seem beyond human power. He is stronger than one man needs to be. But he has shown that one can make himself about what he will. John C. Calhoun said that when at Yale College, he had by rigid determination so disciplined his mind that, no matter where he was, how exciting and distracting the surroundings, or how tired his body, he could make his mind his willing servant as long as he liked. How many men do you or I know who can do that?

And when can we think more effectively—when weak and underfed, and sending weak, underfed blood to the brain, or when keeping it amply supplied with rich, nourishing life blood? When the brain is busy, it needs more blood. Beecher found that in an hour's oration his neck gained half an inch in girth, and that it took about an hour to return to normal size.

The Value of Staying Power

This ability to endure, where others break down on the way, marks the difference between the winner and the loser in nearly every important work in life. It accounts for the success of country-bred boys like Commodore Vanderbilt, Daniel Drew, Peter Cooper, and Russell Sage, in the excessive strain of managing large interests in the city life, where city-bred boys had not the constitution to stand the pace. It is absolutely essential to vast undertakings. "For performance of great mark," says Emerson, "it requires extraordinary health." In the Civil War, general after general had to give up the lead. Though they had countless wealth and vast armies ready at hand, somehow they failed. But an Ohio country boy, trained at West Point Military Academy—its best jumper on horseback, by the way—started with victory, and followed with victory upon victory, often against obstacles that others called insurmountable, until he won, proving himself one of the greatest captains of modern times; till it was well said of him, "I know no such unquestionable badge and ensign of a sovereign mind as that tenacity of purpose which, through all changes of companions, or parties, or fortunes, changes never, abates no jot of heart or hope, but wearies out opposition, and arrives at its port."

A strong man learns to take defeat lightly, to know that most victories have only come after more than one defeat which would have crushed a feebler will. He learns to laugh at defeat, to get right up, Washington-like, and fight on; and that each obstacle is, to a sturdy nature, but a rung in the ladder which leads to the top. To live in our land, at least in its cities or towns, we need this health and stamina.

Thackeray on American Air

Thackeray said that our very air is more exciting than that of England; that "There is some electric influence in air and sun here which we don't experience on our side of the globe; people can't sit still; can't ruminate over their dinners; dawdle

in their studies; they must keep moving; I want to dash into the street now. At home, after breakfast, I wanted to read my paper leisurely, and then get to my books and work. Yesterday, as some rain began to fall, I felt a leaden cap taken off my brain-pan, and began to speak calmly and reasonably, and not to wish to quit my place." The British athletes who visit us to-day say the same thing of our air.

Safe, Simple, and Cheap Exercise

Happily, too, all the exercise one needs to be strong instead of weak, is simple, easy to do, takes hardly one hour of the twenty-four, costs nothing, and can be done almost anywhere. It has no bound or limit. No man knows all the ways to exercise the body. New ones are being found all the time. And each one fits you to do a little better some kind of work or play.

Do you want, for instance, to know how to be erect of carriage? To walk up as straight as the straightest man you know? Well, the walls of the room you are in are vertical. Now stand with your back against the wall; press your heels, the back of your knees, the small of your back, and the back of your neck, as hard against the wall as you can. The small of your back will not touch it, but it will come nearer to it than usual. You are as straight now as the wall itself. Stand there against it in that way for only three minutes. Somehow you have suddenly become straight. The poke-neck of most men has gone; your head is now on top of your spine, exactly where it belongs. Your chest has expanded, your legs have straightened, and you feel the various straps and muscles all over your body gently pulling you into position, until you wonder how you could have so long gone out of true. While so standing there, do another thing. Take a full, deep breath—as so many have taken who meant to get rid of consumption—set about it, used sensible means, stuck to it, and did it. See how your chest rises; how it expands forward, sideways—in every diameter; how it lifts up in front nearer to your chin than you ever saw it before, or thought it could, and the more

you heave your chest the better. And what has this chest-expanding done? Let a man, who has, by simple daily breathing and other exercises, built up a feeble and emaciated body so well that to-day he is a noble personal presence, tell you. Dr. Charles Wesley Emerson, of Boston, says that "The greater the altitude of the vital organs, other things being equal, the greater is their vigor. The heart beats with a more perfect rhythm when lifted high in the chest than when it is low. When the vital organs are high, the lungs consume more air, the stomach properly secretes gastric juice; the liver secretes bile from the blood; the alimentary canal is healthy in the production of what is called the peristaltic waves. The moment these vital organs are lowered from their normal altitude, the air tone of power is lowered. There is no physical defect so general as this—that the vital organs are from one to four inches too low among adults, and among children down to the age of five or six years. Before this time the vital organs are high." Why should not every boy and girl in America practice this slow, deep breathing every day; and this erect carriage that keeps the chest high up toward the chin all the time?

Is it not as important to any man or woman to so largely increase his or her power in every way, as it is to be a little farther on in arithmetic, or geometry, or any of the other studies taught in our schools? What other studies add so much real power as this? Hardly a letter of Washington's but shows that he was a poor speller. But what man has this or any other speaking land produced who was so truly great? He, too, by the way, was but half an inch smaller around the chest than Webster, and was one of the greatest amateur athletes America has ever known. Is it not about time that a branch so simple, so cheap, costing not one cent, so potent for good in about every direction, should be taught to all our boys and girls? And it may be taught in the schoolroom, by the same teacher who hears them in their other studies.

How to Sit Correctly

If they insist that every cadet in West Point shall sit erect always while at recitation, until it becomes a habit, and they do

it without thinking of it, why not establish that same habit in every schoolroom in America? Pupils, at all times, should sit far back on the seat and hold the chin well drawn in toward the neck. The more you draw it in, the more you enlarge your chest. At first it will tire a few muscles a little. But that is of no account. Make the fight, and never give up till you win. No matter how many times you forget or fail, do it again and again, until you find—as you will in a few days—that it is just as easy for you, as it is for a West Pointer, always to hold yourself erect, while sitting or standing; you thus keep your vital-house in such a posture that every vital organ has full room to do good work, as it has not when you stoop.

The Lungs and the Heart

Many athletic persons think that it is more important to have the upper half of the chest larger than the lower; that if you measure large around the chest as close under the arms as you can, that is the main thing in having a fine chest. But only the small end of each lung is in the upper half of the chest.

Far the greater part of the lungs is the lower half. Here also is the heart. So if you want large lungs, and a strong, easy-working heart, you must make their house—the lower half of the chest—as deep and roomy as you can. Whenever you find any one who can outlast others at any kind of really severe muscular exercise, you will almost always find that his lower chest is unusually large. There, we may observe, Webster's was enormous.

There is a broad, thin, pancake-shaped muscle, lying like a great rug, directly under both your lungs. It is called the diaphragm. This is the great breathing muscle. It also is the great singing muscle. Every time you draw in a breath you push the middle of this muscle downward, and you press upon all the vital organs below it, so helping them to be more active and to do better work. When you breathe out, the middle of the diaphragm rises again. Watch a sleeping dog, and see

how steadily his diaphragm acts. By practice, by thinking about it a little, and trying it each day, you will soon become good at diaphragmatic breathing. And every day that you improve at it you are getting stronger for almost anything you want to do, whether of work or sport.

Outdoor Spins for Schoolboys

Most of our schools have poor yards and grounds, while Eton, Rugby, and the great English schools have beautiful acres of greensward tempting the pupils to vigorous play. Some of our schools are as well off, but only a few, for we are very far behind in this important matter; and no schoolhouse ought to be built without a roomy playground. Never mind: let us take an average school—one with nothing worthy of the name of playground. On one or two sides of the block the street is paved with asphalt. That is good so far. Now, if you can get the authorities to have the other two streets asphalted you will have all the tools you need. If you cannot, run on the sidewalk.

Now start a squad of boys—say four abreast—at running slowly around the block once. Yes, slowly. This is important. Most of them are not fit at first for anything worthy to be called running. Have each hold his chin up all the way, as high as he can; breathe through the nose; breathe slowly; holding the arms straight down at the sides, hardly moving them at all. Before they are half way around many will begin to find that they are not good runners. No matter. See that they do the things named.

The slow running has not called upon the heart to do more at first than it had been trained for, or was equal to.

All boys can run a little, as in baseball and other games. But it is usually short, jerky work, harder than is good for them, and does not build them up much. Keeping the arms still, and letting the legs do all the moving, does not tire one half so quickly. But this slow, careful, steady running has already begun to teach them what most of them do not know —that is how to run. Tell them that if any boy feels that he

cannot comfortably go the distance, even at this slow gait, he must drop out when he feels like it. Next day at recess let them do it again. Those who dropped out will go farther each day for the first week, and the second week once around the block will be enough.

Fast Running

After a few weeks, running will be so easy that they will laugh at it. Then they can add to the distance each week till they are doing a mile daily. To a strong boy, over ten years of age, this is no work. In hare and hounds, boys not much older often run from five to eight miles at a stretch. And any vigorous boy should be able to skate all afternoon without harm.

Training for Girls

What is there here not equally true as to girls? Who is apt to get on better anywhere in life: a girl, pale and weak, who tires easily; who has never developed body or limb; whose small feeble lungs, feeble voice, listless walk, and general air of helplessness at once tell all who see her that she is weak; and that unless she mends her way she is sure to go through life a care and a burden to others, and of little or no real help to any one? Or a girl with every muscle gracefully developed, with head well set upon a shapely neck, with high, superb chest, erect, lissome, step springy and elastic, a good runner, swimmer, skater, dancer, golfer, tennis player, sailor, fencer, or a skilled and nervy horsewoman, a splendid walker; her clear bright eyes, exquisite complexion, sunny air, trained mind, and strong, high character combining to give her a face attractive, perhaps radiant with beauty; and an atmosphere so helpful and wholesome, that somehow she wins and owns all hearts? It is easy to answer.

Nearly every one of the things that she does not like, she can cure; and those that she does like, she can have, if she will use the means to get them. We have been seeing how boys can get many of them. And the same, or like ways, will build up the girls just as readily. With all our boys and girls at last

with sensibly educated bodies as well as minds and characters, what else will do as much for the present and future of our race, will reduce its sickness and mortality, and will aid on all lines the development of our wonderfully favored land?

SYSTEMATIC PHYSICAL TRAINING

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Introduction

Chapter I—Our Physical Needs

THE peril of this century is physical decay. This peril is gravely imminent with respect to all who dwell in our great cities. All the conditions of life in the modern American city favor it. Our vastly developed commercial tendency is one of its most effective promoters. Wealth, or the accumulation of that wherewith to gratify the desires, is the great incentive of our contemporaneous life, and under its fevered stimulation, vast numbers of men and women, utterly careless of the body's needs or demands, struggle in the great conflict, and eventually go down, victims of the unchangeable law of Nature, which decrees that the fittest shall survive.

And all these weak persons, who succumb to the inevitable before they have reached the ultimate span of a normal life, bear or beget children who are weak in proportion as their parents were weak, and these, thrust in their turn among conditions demanding strength, resisting power, and vitality, succumb quicker than their forebears.

We are living in an age of rapid transit. The telegraph, the telephone, the swift-flying mail train and ocean liner have quickened the pulses of life and revolutionized the methods of doing business. How to keep pace with this rapid method of doing things is getting to be a very serious problem with a great many people. The difficulty of adapting one's self to new methods of thinking and acting is a very real one, and thousands of persons are breaking down annually in their efforts to do so. It would be the height of folly for a young

man to enter an athletic contest at the present day without taking a course of preparatory training to get himself in condition. But the pursuit of a trade, business, or profession is no less a struggle, in which those who are best prepared and who keep themselves in the best working condition, both mentally and physically, win success, while those who are poorly prepared, through lack of a good inheritance or education, or who neglect to keep themselves in fine physical condition, drop out of the contest and give up the race. It must be apparent to every one that in order not only to attain eminence, but even to hold one's own in the struggles of the business world, a man must always be at his best.

How to keep one's self physically fit to meet the duties and responsibilities of everyday life is a vital matter, worthy of consideration by every individual.

There is a great natural truth, universally demonstrated with regard to the various forms of living organisms embraced in the animal life of the world; and that is, when all the functions of the body work together harmoniously, such as the digestion, the respiration, the circulation, and the excretion, there is found a normal, strong, healthy organism, capable of existing under conditions that would mean the quick dissolution of one in which there was a derangement of the natural functions.

The human body is a most intricate piece of machinery. It may be compared to a steam engine which requires fuel, water, and oxygen. It obtains heat by the burning of the fuel with oxygen; the waste products that result from the combustion take the form of carbonic acid gas, urea, etc.

To insure a continued, harmonious working of this machine, all the parts must be properly developed and adjusted, one to another, and there must be a constant supply of the fuel (food), water and oxygen.

This complex machine has the power of effecting repairs resulting from ordinary wear and tear, under proper conditions, so that with the proper treatment, the span of its existence might be indefinite.

Briefly, the digestive organs supply the blood with fuel,

which is carried to the lungs and other parts of the body to be utilized as heat-producing elements, or to repair some broken-down part of the machinery. The oxygen necessary to completely burn, and employ this fuel, is taken into the lungs by respiration, or breathing. As the blood circulates through the body, laden with the various elements which constitute the tissues, bones, nerves, etc., of the body, the various living cells select what they need for maintaining their structure, and the residue, or waste, is passed out through the excretory channels as waste products.

But without exercise of our bodily functions they become deranged and weakened. The body without exercise is like a rusting engine, which finally drops to pieces from sheer disuse. Flabby muscles, shortness of breath, inability to undergo sudden or difficult exertion, and low vitality, are the certain symptoms of a body that is rusting.

With this plain, common-sense view of the structure and functions of the human body before us, it is apparent that the only thoroughly natural method of maintaining the equilibrium of health is to exercise—use the various organs reasonably—and to supply the proper proportions of food, water, and oxygen.

But the intellectual character of civilization has the tendency to develop the mental faculties of men and women at the expense of their physical strength. This is one of the evils of specialization, where an individual becomes a mental machine, quick and ready at his chosen work, but weak in all that goes to make physical manhood. From this one-sided development there can be nothing but ultimate failure.

The physical organization has been left out of the scheme of life altogether by many men and women, or else a too strong belief in the potency of drugs to remedy any manifestation of weakness has led them into the error of artificial stimulation of the overtaxed muscles and nerves, with disastrous results.

The day when there was absolute dependence in drugs has passed, and the advance guard of the new medical profession has for some time past recognized the fact, that not only physical development can be attained by exercises which employ the muscular system in regular movements, but that by bringing

into systematic use the muscles and organs of any affected portion of the body, wonderful curative powers are put in operation.

There have been half a dozen treatises on the application of physical exercises to healing purposes written by members of the medical profession. But most of them were designed merely to supplement the ordinary treatment by drugs. We undertake to supply herewith a series of exercises, devised to gradually strengthen the entire physical body, and to do it so gradually that even an invalid may take up the system, and by following it through to its conclusion obtain not only relief from his disease, but the requisite degree of muscular strength which one of his or her particular height and build should possess.

Most of the systems of physical culture heretofore put before the public are arduous, and demand considerable time. The advantage we claim for the following exercises, which embrace all that is necessary to secure the development of an athlete, is that they requires absolutely no apparatus, although we give a few movements at the close for dumb-bells; and that all the time required is a few minutes every morning and night. You will never miss these short periods of exercise from your day's duties, and you will find yourself unconsciously gaining vigor and elasticity, and the buoyant spirit that is inseparable from successful achievement.

Chapter II—Diet

I referred in the preceding chapter to the importance of supplying the proper fuel to the intricate living engine—the human body. The importance of this subject becomes greater when we undertake to effect a development of the physical system to that degree of perfection that accompanies health. A person might exercise persistently, practicing the most approved movements, and still never succeed in developing a particle of muscular tissue, or gaining the normal level of health, if they refused to conform to a diet that would supply the elements of nutrition needed by the body to maintain its heat and effect its repairs.

A great many persons who have made a study of the relation of strength and endurance to food, have arrived at the conclusion that a vegetarian diet is the best for quick, permanent, and vigorous development. I, however, have been able to secure good results where a mixed meat and vegetable diet was employed, provided I could secure the desired rotation of foods.

It is a well-known fact that a majority of people continually over-eat. If they do not over-eat in quantity, they do it by consuming such foods that an over-supply of some element of nutrition is obtained at the expense of some other very necessary element.

The ideal diet would be one that combines the exact quantity and proportion of elements that the body consumes in the course of a day. It is comparatively easy for the scientist, equipped with all the apparatus at his command, to determine the elements needed, and their exact proportions. The elements required in the daily ration of a normal healthy man consist of nitrogenous, or tissue-building foods, to give the elements needed to effect repairs in the tissue structure; fats, which are heat-producing, starch and sugar, also heat-producers of a lower grade, and a small percentage of water and vegetable salts.

All these four elements are contained in vegetables, and in approximately the proportions needed by the body. Meat is a tissue building food, and where a mixed diet is preferred, this should be borne in mind, and the necessity for eating a sufficient quantity of vegetables or fruits be not overlooked.

I shall not enter into any extensive discussion of foods here, but I devote sufficient space to give the student a proper idea of the foods he should eat, and how they should be eaten.

For one of average health who undertakes this system of exercise for better physical development, the following regimen of diet should suffice:

At the first meal, eat only fruit, cereals, and milk. This should be thoroughly masticated, and not gulped down without being mixed with a sufficient quantity of saliva to start digestion immediately.

When convenient, the principal meal should be taken about noon, when the activity of physical organization is at its height, and the body is expending more energy and needing more heat producing and repair materials than at any other time. This meal should be confined to one dish of good, well-cooked meat; beef or mutton preferably; whole wheat, or some whole grain, bread, butter, a few potatoes, rice or other starchy vegetable, and all the watery, saline vegetables, such as spinach, cabbage, turnips, lettuce, celery, cresses, etc., that the appetite craves. For dessert, rice or tapioca pudding or fruit is the best.

Plenty of time should be taken at this meal, and every morsel thoroughly masticated. Nine-tenths of the stomach disorders arise from swallowing food improperly masticated; and all the physical exercises you can take will not make up what you lose in omitting to exercise the muscles of your jaws sufficiently at meals.

If I were called upon to point out the most important exercise that a man or woman could take, I would unhesitatingly say, exercising the muscles of the jaws at meal time. This thorough mastication not only desiccates the food, and turns it into the stomach in a condition that permits the speedy action of the digestive fluids upon it, but it constantly sends out into the mass of food tiny jets of saliva, which is one of the most important juices in the digestive apparatus, and without a sufficient quantity of which complete digestion is utterly impossible.

The last meal should be eaten several hours before retiring; and when the principal meal is eaten at noon, it should not include any meat. Bread, cheese, vegetables of all kinds, and stewed fruits, should be the principal ingredients.

It is of the utmost importance, where one desires the quickest and best muscular development, to omit coffee, tea, and stimulants from the dietary, and to avoid pastries, highly seasoned and spiced dishes. In the place of coffee or tea as a beverage, substitute either cocoa or a mixture of hot water, milk, and sugar.

There is a mistaken idea that meat is the only strengthening food. On the contrary, if you want to develop good, firm, elastic muscles, and put the organs of your body in a healthy

condition, do not eat much meat. Confine your meat eating to one meal, as suggested in the foregoing schedule, and absolutely and resolutely refrain from anything between meals. Eat as little of sweets as it is possible to get along with. Do not eat candy at all, and what fruit and nuts you eat, make a part of one, or all, of your meals, and eat them as necessary food, not for the sake of stimulating the nerves of your palate.

Three meals a day are sufficient for any one, even a man doing heavy physical labor in the open air; and if your occupation is indoors and largely sedentary, two will be found sufficient.

Let your meals be regular, and vary the vegetable portion of your diet as much as you can. With the great variety of vegetables, fruits, and nuts always in our markets, this is not only easy, but it can be done economically.

Where it is desired to go without meat, it can be easily done, and perfect nutrition maintained, by merely substituting such food as eggs, cheese, beans, peas, or lentils in its place. Peanut butter and whole wheat bread also form a combination that, quantity for quantity, give more nutritive qualities than can be obtained from the richest meats.

The drinking of water is a very important part of the hygienic care of the body. Most persons do not realize the important part played by this fluid in the mechanism of the body, and constantly neglect to take a sufficient quantity of it. Drinking at meals should be avoided, as a little practice at proper mastication will demonstrate that no fluid is required as a part of the meal. Water at about the temperature it comes from the earth should be drunk freely, however, immediately after rising in the morning, and at intervals between the meals. Where the desire for it has been denied until the habit of going without it is fixed, a glass should be taken at regular intervals every day. Those who will adopt this method will be surprised at the beneficial effects that will follow.

Under ordinary conditions waste matter accumulates daily in the alimentary tract, and that part of one's body needs cleansing with water just as much as the outer skin.

Chapter III—The Way to Gain Strength

It would be well for us to consider at this point the various kinds of physical or muscular development it is possible to attain by systematic exercise.

All my readers have, possibly, at some time or another, seen one of those extraordinarily developed individuals, with bunches of so-called muscles that seem to be stretching their covering of skin almost to the bursting point.

I want to caution you against this type. Such muscular development is to be shunned just as one shuns a disease. It is the affliction of men who have overtrained, and who have strained their muscles to the limit of their endurance continually for a long period of time. They have succeeded in making them large, but they lack life, resiliency, and spring.

I may compare the healthy muscle to a steel spring. The latter has a point beyond which, if bent, it will not resume its original shape; and a muscle, tired beyond its normal point of resistance, will become hidebound or stiffened. It cannot bear the strain, or respond like the long, smooth, normal muscle.

Another form of development is likewise to be avoided. It is the bunchy type of muscular development. You have seen it in the arms of sailors, for instance, whose work has been mostly hauling halyards; in professional strong men, who give weight-lifting exhibitions, and have enormous arms and shoulders, sometimes with very little lung power, and with poor, malformed legs.

The bunchy muscle is only partially developed. When contracted it stands out prominently, and looks enormous, because only a part of the muscle has been developed, and the lack of development of the remainder robs it of its symmetry.

In both of the forms of development mentioned above, the underlying veins and arteries are liable to be much enlarged, and therefore are sure breeding grounds for disease.

The ideal muscle is the one that combines the greatest strength with the greatest suppleness. It should contain the largest possible number of sound muscular fibers, without any

attendant malformation of the inclosed vessels. Ideal muscular development, moreover, should extend throughout the entire body; embracing not only strong external muscular tissues, but sound, strong heart, lungs, and internal organs, and should be accompanied by a harmonious working of those organs.

Good digestion, restful sleep, and a pink skin are the best indications of such a condition. To the untutored eye, one who possesses the ideal development may not appear to be so powerful as either of the two false types I have mentioned, but place individuals representing each type in a position requiring endurance, or a manifestaton of general bodily strength, and the ideal development will triumph in every instance, provided, of course, that the individuals are of similar height and weight.

For the acquisition of this form of development the greatest care is necessary. The body must not only be supplied with proper food, as stated in the preceding chapter, but care must be taken to begin the exercise in such a manner that there is an even development throughout the entire muscular system; and to have the muscles, during exercise, in the most favorable condition. There must always be a full supply of blood to the muscle in use, and, to obtain this, attention must be constantly directed to full, deep inhalations of pure air.

I have stated before that proper care in masticating food should be used freely by those who would secure a good, sound physique. It is not less important that the lungs be regularly and thoroughly employed. The purification of the blood—the burning out of the dead, waste matter in it by contact with oxygen—occurs in the lungs, and in order to furnish the proper kind of blood to your muscles, you must thoroughly oxidize it in the lungs. Bear this in mind, later, when you come to the exercises, and acquire the habit of proper breathing as quickly as you can.

Muscular development should be undertaken with a view to secure quickness of response, or suppleness, as well as to acquire resisting power. To do this the amount of resistance imposed upon the various muscles must be carefully graded. Any muscle, or set of muscles, subjected to a weight, or resisting force,

greater than the energy of the muscle can sustain, becomes strained and weakened.

This system of exercises was designed with the special object in view of leading the student, by easy stages, into a condition of ideal development, in which all parts of the body are harmoniously strengthened. Therefore this word of caution is needed here. Take up the exercises as they are given; practice each series for the time allotted to it, following instructions faithfully, and you will acquire the development desired in a much shorter time than if you performed the movements haphazard, and without reference to the gradual strengthening of the muscles employed.

If you have ever performed any unusual physical work, such as taking a long bicycle ride after months of idleness, or attempted an unusually long walk, you are aware of some of the effects that may be expected from subjecting weak, undeveloped muscles to too great a strain. The soreness and lack of tone that generally follow such an experiment prevent one from repeating the effort for some time.

So, in exercising, if you do not adopt a gradual, systematic form of development, there are likely to be disastrous results. Too much exercise, as we have seen, will result in staleness, or a muscle-bound condition. Exercise of a violent nature, performed by one with untrained muscles, will result in a loss of tone, the rupture of a muscle, rupture of a blood vessel, dilatation of the heart or an artery, the giving way of a weakened valve of the heart, and divers other untoward manifestations.

These exercises were designed with the special object of supplying healthful and harmless exercises, which may be taken with benefit by the weak, as well as by the healthy. There is no danger, even in a patient suffering from heart disease, for instance, taking this system of exercises, if he will follow the instructions carefully, and depend on constant repetition for the development he desires to effect, instead of attempting to apply the entire system to his case at once.

Regularity and moderation are the mainsprings of success in striving for ideal physical development, just as they are in eating and the other pursuits of life.

In fact, regularity must be the watchword of every one who would secure the much to be desired blessings of sound health, a symmetrical body, and mental and physical vigor.

Chapter IV—Bathing

One of the most important of the excretory organs is the skin. In a previous chapter I referred to a clear, ruddy skin as being one of the best indices to a strong, healthy physical condition, which is invariably accompanied by pure blood.

Likewise the skin is also one of the most easily affected parts of the body in the case of disease. A number of obscure and troublesome diseases are confined exclusively to the skin. We all know how quickly the skin registers the existence of a deranged physical condition. In cases of indigestion, imperfect nutrition, poor circulation, and many nervous disorders the skin becomes pallid, cold, and clammy; and in all fevers the skin is hot, dry, and rough.

The fact that it plays such an important part, and is such a clear barometer of one's physical condition, should argue for the most minute care of that part of the body.

One of the first essentials for a healthy condition of the system, is a clean, healthy skin. To secure this, regular bathing is required. Through the pores—the tiny excretory ducts which arise in the subcutaneous tissues, and open at the surface of the skin—there is a constant excretion, in health and sickness, and unless this is removed, and the pores kept open, the results are bound to be disastrous. One of the most important phases of exercise is that by muscular movements. During exercises of this kind the skin is contracted and expanded, just as the deeper muscular tissues are, and the pores are made to discharge, in the form of perspiration, all the waste material that may, in the course of the bodily economy, have come into their territory.

Bathing, like eating, sleeping, and exercise, should be regular, and it should be performed as intelligently as any other important function of civilized life. No one can keep the skin in a healthy condition by an occasional bath, at intervals of a

week. The skin demands daily care. The time spent in regular care of the skin will be amply repaid by the feeling of buoyancy, and the freedom from nervousness, and the effects of external conditions of temperature that are the results of proper bathing.

I would recommend to those who take up this course of physical development a hot bath, with plenty of soap, at least once a week, taken with a view to removing all the accumulations of perspiration, dead tissue cells, as well as the dust, etc., that one invariably accumulates upon the skin. In addition to these hot baths, there should be cold sponge or towel baths once or twice a day after exercising. Soap should not be used with these cold baths oftener than once or twice a week.

The cuts herewith show one of the most effective methods of stimulating the surface of the skin, and it should be made a part of every exercise. It is known as the friction bath, and should be taken immediately after going through the particular set of exercises you may be practicing, both morning and evening. A coarse Turkish towel is recommended, but a flesh brush may be used by those who prefer it.

Grasp the towel, as indicated in the cut, with hands far enough apart to give the arms room to swing, and then rub briskly, back and forward, over every part of the body, and continue till the entire skin is pink from the accelerated circulation.

Bathing—Fig. 1.

It will usually take two or three minutes to accomplish this, and these two or three minutes, if the movements are made rapidly, and regular and deep inhalations are practiced, will suffice to give the body a ruddy, healthy glow.

Then wash briskly with cold water and sponge the entire body.

Directions for Friction Bath

Bathing—Fig. 2.

Stand erect, with feet together; grasp towel near each end, firmly; begin at back of neck, and with forward and backward passes of towel, work downward to waist, rubbing back, sides, and chest.

Then begin at the ankles, and work upward on each limb, as in cut No. 2. Finish on the arms, rubbing them briskly from the wrist toward the shoulders, and immediately sponge off thoroughly with cold water.

Chapter V—Breathing

The conditions of modern life, especially those surrounding the man or woman of sedentary habits, are such as to make very little demand upon the individual for great lung capacity. The neglect of this function has brought the usual and inevitable decadence. There are but few people of normal lung capacity; and those with breathing power sufficient to enable them to run a hundred yards without being completely exhausted are exceedingly scarce.

One who has never studied the scientific development of the body would be surprised at the results of a few simple breathing exercises practiced daily. They will result, in the course of a very short time, in rounding out the flattened chest, giving greater lung capacity, and endowing the individual with an amount of endurance that he never dreamed of possessing.

Breathing is purely a muscular act. Proper breathing consists in thoroughly inflating every cavity of lung tissue by sufficiently enlarging the cavity of the thorax, to give the lungs room to expand. The upper part of the body, strengthened and surrounded by bony structure, can expand but little, therefore the normal breathing is done by exercising the muscles of the sides and diaphragm. This results in lifting the chest and

naturally pushing out the ribs, and stretching the connecting tissues.

Breathing exercises should be of two kinds: those taken when you are going through your regular exercises, and which should continue throughout the exercise; and those taken while you are walking, which should be practiced every time you get a chance, until you have acquired a habit of deep, proper breathing.

As the quickest way to accomplish this, begin each of your exercises with the following special breathing exercises:

First Breathing Exercise

Stand with the heels together; slowly inhale through the nose all the air you can hold in the lungs, with arms at side; then lift first one arm slowly, striving to inhale more air as the arm is lifted. Then raise the other arm, trying again to fill the lungs more completely; then let both arms drop at the sides, and exhale quickly through the open mouth. Repeat the exercise six to eight times. When taking up the other movements, continue to draw in as deep, regular breaths as possible while going through them.

Second Breathing Exercise

Stand near an open window, not in a draft, shoulders thrown back, head erect; then inhale slowly, to the full capacity of the lungs (Fig. 1). When the lungs are completely filled, open the mouth and expel all the air that you can by contracting muscles at waist and sides.

Breathing—Fig. 1.

Repeat this eight to ten times the first week, and increase two or three breaths a week, until you are taking thirty to forty at each exercise.

This should invariably precede both morning and evening exercises.

Moreover, one must not conclude that attention to breathing can end with the few moments devoted to systematic exer-

cises every morning and evening. The individual who would gain strength rapidly will continue the breathing exercises at intervals during the day, and gradually accustom himself to a habit of proper breathing. This is only arrived at when one has learned not only the proper method, but has so schooled the various muscles employed in breathing that they perform their functions involuntarily.

Walking—Fig. 1.

To attain this object, one should cultivate a correct habit of walking and carrying the body.

Always walk with head erect and shoulders thrown back. Then as you start off inhale, through the nose, all the air the lungs will hold, breathing abdominally or diaphragmatically. When the lungs have thus been filled to their utmost capacity, retain the air while you take a stride, and then exhale quickly, emptying the lungs as completely as possible (Fig. 1).

At the start never attempt to forcibly expand the chest. Simply breathe naturally. When you have acquired the habit of taking full, deep breaths, and have practiced the exercises given in subsequent lessons, you will find that your chest will expand naturally.

General Directions

1. These exercises should be taken twice each day.
2. The best time to exercise is immediately after rising, and just before retiring.
3. Clothing prevents the free movements of the body, and also hinders the excretory function of the skin, consequently have as little clothing on when you exercise as possible. The best way for the healthy to exercise is nude.
4. The exercises should be taken in a room thoroughly ventilated, by open window, but avoid drafts during first week of your practice.

5. Immediately after exercising, take cool (not cold) sponge bath. It is important that the bath should immediately follow exercise, as it cleanses body of matter forced out of pores by the movements.
6. Rub body dry, briskly with rough towel, from head to foot, till skin is pink.
7. In the instructions that follow, we will frequently allude to "rigid" or "flexed" muscles. You should learn how to produce this condition at once. The muscles of the hands, wrists, and arms are made rigid by clinching hands and throwing your will into movement, as if you were lifting or pushing a heavy weight. The muscles of legs and body may be "flexed" or made rigid by assuming attitude you would in supporting a weight, and holding it. Keep this in mind when exercising, as results largely depend on the will power you put into your exercises.
8. Interest may be kept alive in the exercises by practicing before a mirror; you will also learn how to make the movements accurately.
9. These exercises should be taken regularly and strictly according to directions. Do not miss a single day. Half-hearted, spasmodic work will not bring the results you desire.
10. You should get in the habit of flexing your muscles—i.e., making them rigid—at intervals during the day. You will find great benefit, for instance, from stretching or "flexing" the muscular system, just as you have seen a dog or cat do, during leisure moments, in your office, or when you change from sitting to standing position. Attention to this will make the muscles firm quickly without much apparent effort on your part.
11. If muscles become sore after two or three days' exercise, don't become alarmed. Continue the movements, but do not attempt to make the muscles very rigid for a day or two, till soreness disappears.
12. Allow five or ten seconds to elapse between exercises, and during this interval allow muscles to thoroughly relax.

SYSTEMATIC PHYSICAL TRAINING

Exercises without Apparatus

FIRST LESSON

Exercise 1

STAND erect, arms extended as far as possible above the head, hands tightly clenched. Hold the body rigid, and the head firmly braced (Fig. 1).

Bend the arms at elbows, keeping muscles as firmly flexed as possible, and drop hands towards shoulders, turning hands downward firmly at the wrist. Continue the downward movement till the thumbs touch the shoulder, then thrust the arms straight upward to the starting position, straightening the wrist as you make the upward movement. Make this movement as if you were striking at something slightly out of your reach.

Lesson I—Fig. 1.

Begin with twelve movements, and increase to sixteen second week.

This exercise will develop the muscles of the forearm, biceps, triceps and shoulder muscles, and stimulate the circulation of the upper part of the body.

Exercise 2

Stand erect, with heels together, hands tightly pressed against hips, shoulders back. Without allowing the body to sway from side to side, raise the right foot as high as it can be

Lesson I—Fig. 2.

lifted, keeping it always close to the other leg (Fig. 2). Then return it quickly to the floor, and lift the other foot in a similar manner. Continue this movement as briskly as you can, using alternately the right and left legs.

Commence with fifteen movements of each leg, and increase to twenty-five second week.

This movement will develop the muscles of the calves and thighs, and promote the circulation through the lower extremities.

Exercise 3

Stand erect, heels together, arms extended straight in front of you and parallel, wrists turned inward, hands firmly clinched (Fig. 3).

Swing arms outward and backward, in arc of circle, endeavoring to make the hands come as near meeting behind your back as possible. When the movement backward has been carried as far as you can make it, without straining, bring the arms quickly to the starting position.

Begin with eight to ten movements and increase to twenty second week.

Lesson I—Fig. 3.

Exercise 4

Assume same position as in Exercise 3; then, flexing muscles of arm firmly, and allowing the elbows to bend outward, and bending the hands inward at the wrist, bring the clenched hands together against the chest, backs touching. Thrust arms straight out to starting position vigorously.

Begin with ten movements at each exercise and increase to twenty second week.

These exercises will develop the pectoral and other muscles of the chest, and increase the chest expansion and breathing capacity.

Exercise 5

Lesson I—Fig. 4.

Stand erect, heels together, hands placed firmly against the thighs; hold the legs rigid and perpendicular; then bend the body at the waist, alternately to right and left, as far as possible without losing balance. Make this movement slowly and deliberately, practicing deep and regular breathing (Fig. 4).

Begin with twenty movements and increase ten second week.

This exercise will give elasticity to the diaphragm, strengthen the muscular walls of the abdomen, stimulate the circulation and kidneys, and develop the supporting muscles of the lower half of the spinal column. Suppleness and a more graceful carriage will also be secured.

Lesson I—Fig. 5.

Exercise 6

Stand erect, heels together, hands extended straight over head, palms turned to the front (Fig. 5). Bend at the waist, keeping knees rigid, and sweep downward with extended arms, until fingers point to the floor (Fig. 6). Try every time you make this movement to touch the floor, then return to starting position, holding arms straight, and sweeping outward and upward with the hands. Perform the movements quickly.

Lesson I—Fig. 6.

Begin with twenty-five movements and increase to thirty-five the second week.

This exercise will greatly promote suppleness, strengthen the muscles of the back and sides, and tone up the action of bowels and kidneys.

Lesson I—Fig. 7.

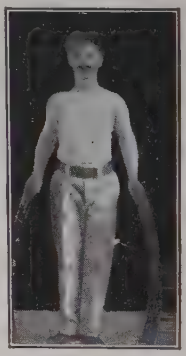
Exercise 7

Stand erect, hands clenched and resting on the hips; breathe slowly and regularly; hold the legs and body rigid, and turn, at the waist, as if on a pivot, slowly and deliberately, from side to side as far as possible (Fig. 7). In making this movement hold the abdomen in. Continue until you are slightly tired.

This movement is to aid in gaining control of the abdominal muscles, and to stimulate the internal organs.

SECOND LESSON

After you have devoted two weeks to the first lesson, the second lesson may be taken up. Go through the movements of the first lesson every day, morning and evening, repeating each exercise eight to ten times, and follow with the exercises included in this lesson. If you are regular in your exercising, and do not omit them, you should begin to see considerable improvement in your muscular condition by the time you have concluded the two weeks allotted to this lesson. Increase the number of movements three to five the second week.



Lesson II—Fig. 1.

Exercise 1

Stand between two chairs which you have placed back to back about thirty inches apart (Fig. 1). From this position bend the knees and the arms, allowing the body

to sink between the chairs to a depth of about twelve inches; then extend both arms and legs energetically, bringing the body to an upright position. Be sure to keep the head and shoulders well back, and to lessen the resistance put upon the muscles of the arms and chest by doing the greater part of the work with the legs. In no wise is it advisable to try to lift the weight of the body between the chairs by the use of the arms alone. Repeat twenty times. This exercise will rapidly develop the muscles of the arms.

Lesson II—Fig. 2.

Exercise 2

Stand with the feet about twelve inches apart, with the arms extended outward from the sides in a horizontal position (Fig. 2). From this position turn as far round as possible to the left, keeping the left arm fully extended, but allowing the right arm to fold across the chest until the fingers touch the left shoulder (Fig. 3); now reverse the movement, turning quickly to the right, swinging the right arm well back in a horizontal plane, and allowing the left arm to fold across the chest until the fingers touch the right shoulder.

Lesson II—Fig. 3.

In doing this exercise concentrate the attention about the muscles of the waist and loins, but use the arms and legs in swaying from side to side in such a way as to modify or intensify the strain put upon the center of the body. Repeat twenty to thirty times in each direction.

Lesson II—Fig. 4.

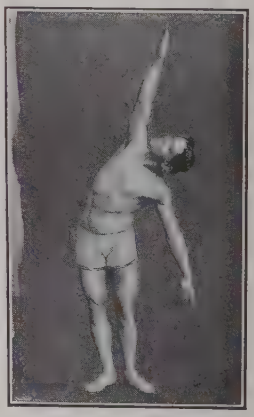
Exercise 3

Stand as in Figure 4, arms extended, heels together, muscles rigid, hands clenched and palms to the front; then step forward with left leg, twenty-eight to thirty inches, bending left knee, and bringing clenched hands inward until thumbs touch the chest; body slightly bent backward at waist when in position of Figure 5. From this position return to that of Figure 4, extending arms to full length, and straightening body to full height, holding muscles rigid. Make ten movements, and then put the right leg forward and make ten additional movements.

Lesson II—Fig. 5.

Exercise 4

Stand erect with arms extended, fingers straight; then, holding arms as nearly in a straight line as possible, and the muscles of legs and arms rigid, bend at waist till one hand points straight to the floor, and the other straight to the ceiling (Fig. 6); straighten body and bend in opposite direction till the position of the arms is reversed. These movements should be made quickly. Repeat fifteen to twenty times.



Lesson II—Fig. 6.

Exercise 5

Lesson II—Fig. 7.

Stand with heels together, hands placed firmly against the body at the waist; then lift right leg, sideways, as high as possible, straightening the foot as the leg is lifted, and swaying the body slightly in

opposite direction; return leg to starting position, and then thrust out left leg in similar manner (Fig. 7). Repeat the exercise ten times with each leg.

THIRD LESSON

Repeat each of the exercises given in the preceding two lessons ten times, and at their conclusion add the exercises given in this chapter. It will be found of great benefit in developing the muscles of the hands, arms, and shoulders to practice the following exercise several times during the day when opportunity offers.

Clasp the hands behind the back, straighten the arms, and press them inward against the sides as firmly as possible, inhaling a full breath in the meantime, exhaling it as you relax from the movement. Clasp hands in front of the chest, elbows bent till the forearms are in a straight line in front of the body, and then try to pull hands apart, using all the force, both in grip and pulling, that you can.

Lesson III—Fig. 1.

Exercise 1

Stand erect, then, inclining body slightly forward and lifting one leg, clasp hands over knee, straighten the body, and pull thigh as firmly against the lower part of the abdomen as possible (Fig. 1). Relax, and repeat movement with other leg. Repeat ten times with each leg.

Lesson III—Fig. 2.

Exercise 2

Stand in a natural position with the elbows at the sides and finger points touching, just under the chin. Raise the elbows out from the sides as high as possible, keeping the fingers of both hands in contact under the chin, and elevate the right knee to

Lesson III—Fig. 3.

a horizontal position in front of the body, as in illustration (Fig. 2). Return to the original standing position with the elbows at the sides and raise the elbows and left knee; repeat alternately with right and left leg elevated twenty times.

Exercise 3

Stand erect in a natural position, arms at sides, body held perpendicular, and chest out; then, bending both knees, let the body sink downward, rising slightly on the toes, till you have assumed as nearly as you can the position of the figure in the illustration (Fig. 3), returning to erect position without moving the feet on the floor. Repeat twenty to thirty times.

Lesson III—Fig. 4.

Exercise 4

Stand with the right leg advanced diagonally forward about thirty inches, and the hands held clenched about the height of the hips (Fig. 4). From this position swing the body forward, pivoting at the hips and throwing the weight well on to the right leg. Extend the arms downward till the fingers touch the floor just beyond the right foot (Fig. 5). Bring the body to an upright position, pulling the arms upward and backward until the hands are again on a level with the hips. The movement is a little like that employed in rowing a boat, and the action may be greatly intensified by leaning well back at the end of each stroke, so that the body is on a line with the advanced leg, and the weight is shifted from

Lesson III—Fig. 5.

the right to the left foot. Repeat fifteen to twenty times, then place the left leg in position and go through the movement a like number of times.

Lesson III—Fig. 6.

Exercise 5

Stand with the feet together in a natural position, with the left hand on the hip and the right arm by the side. Raise the right arm upward and sideways to an extended position above the head; at the same time raise the left leg outward and sideways as far as possible, being careful to keep the moving arm and leg rigidly straight (Fig. 6). Repeat fifteen times, and then make same number of movements with the left arm and leg.

Lesson III—Fig. 7.

Exercise 6

Stand with the right foot advanced diagonally about thirty inches, with the left arm folded across the small of the back, and the right arm extended upward over the head as far as possible (Fig. 7). From this position incline forward, pivoting on the hips, and touch the floor in front of the right foot with the fingers of the right hand (Fig. 8). Return again to the original position, keeping the right arm rigidly extended and carry it backward as far as possible. Repeat ten times, and then make ten movements with the left foot advanced and the right arm behind the back.

Lesson III—Fig. 8.

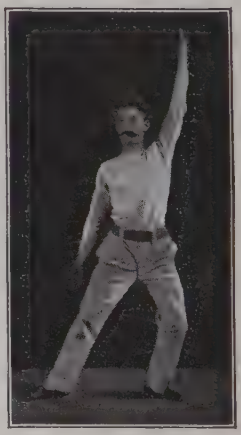
FOURTH LESSON

If you have faithfully followed the directions given in the preceding lessons, omitting none of the exercises, you will have greatly stimulated your muscular system by the time you have completed the two weeks allotted to the last exercises, with the movements continued from other lessons. We can now proceed to exercises requiring considerable endurance, and calculated to harden the muscles rapidly. From this point onward we shall conduct you through movements that will produce athletic muscles. If you have not sufficiently strengthened your muscles by the preceding exercises, to take these without producing soreness, or undue strain, merely attempt them, and practice the movements of the preceding lessons which bring into play the muscles which show undue weakness. In a very little time you will be able to do the most difficult exercises, and your muscles, while not as hard as wood, will be as hard as a healthy, normal muscle should be. Moreover, they will be evenly developed. Continue the exercises of Lessons Two and Three, beginning each exercise with the movements given in this lesson.

Lesson IV—Fig. 1.

Exercise 1

Stand with the feet about twenty inches apart, with the weight thrown on the right leg, and the right arm extended upward, and the left arm down by the left side (Fig. 1). From this position bring the left arm sideways and upward, and carry the right arm sideways and downward, throwing the



Lesson IV—Fig. 2.

weight of the body at the same time on the left foot (Fig. 2). Continue the exercise, throwing the weight of the body first on one leg and then on the other, bending the right knee and swaying the hips to the right and the shoulders to the left as the right arm swings upward and the left arm downward, and reversing the action of the hips, legs, and shoulders as the left arm swings upward and the right arm downward. Repeat twenty-five times.

Lesson IV—Fig. 3.

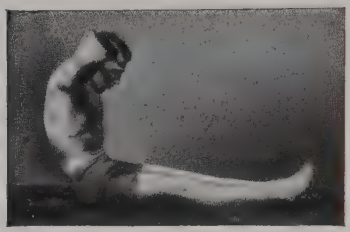
Exercise 2

Stand as in illustration (Fig. 3) ; hands tightly clinched and held against chest; strike out, as if at an object, with left hand, holding right fist against chest, throwing body slightly forward, bending left knee, and bringing left foot firmly on the floor, and at the same time straightening the right leg and raising the heel of right foot. Bring the left arm back to starting position, throwing the body backward from the waist up, striking straight in front of the body with the right hand, dropping the weight of body on the right leg, bringing the right foot firmly on the floor and raising the heel of the left foot until the top of the foot nearly forms a straight line with the leg. Make the movement ten times and then change position of the legs, bringing right in front; and repeat ten times.

Lesson IV—Fig. 4.

Exercise 3

Lie at length on back, arms folded on the chest; bring the legs up slowly and steadily, without bending the knees, until they are perpendicular, then press them forward towards the head as far as possible, and return to starting position (Fig. 4). Breathe regularly while making this movement. By bringing the feet as far forward as possible, and slightly raising the buttocks each time, the best results may be obtained. Repeat eight to ten times.



Lesson IV—Fig. 5.

Exercise 4

Lie at length, hands clasped back of neck, muscles rigid, then, without lifting the feet, rise slowly to sitting position (Fig. 5), returning from this position to the reclining one. Repeat ten times.

Exercise 5

Stand erect, arms extended straight over the head, palms forward, then bend body at waist, bring arms downward until the fingers point to the floor, holding knees rigid; then straighten the body, throwing arms over the head and as far backward as you can, as in the illustration (Fig. 6). Repeat ten to fifteen times.

Lesson IV—Fig. 6.

FIFTH LESSON

The object of the preceding lessons has been quite as much to train the muscles to uses other than what they have been subjected to in the ordinary course of your daily life, as to promote development. The splendid development you see in the athlete was obtained by work, and if you aspire to a fine athletic physique you must work to obtain it. The exercises in the succeeding lessons, therefore, will be such as require actual muscular exertion. If you have prepared for them by faithfully going through the preceding lessons, you will be in a condition that will enable you to go through the exercises with comparative ease.

These exercises will give you all the "heavy" work needed to perfect your development, without recourse to any form of apparatus, and without entailing the risk of injury from strain.

During the first week of your practice of the following exercises, do them only at night, following the exercises of the preceding lessons; then add them to the morning exercises also, if you have the time. If your time is limited in the morning, you may take them at night only, dropping the exercises included in the first two lessons, and devoting a little more time to these exercises.

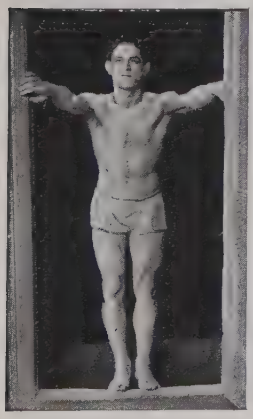
Exercise 1

Stand in an open doorway, the feet together, a few inches back from the sill, grasp the sides of the door firmly, at about the height of the chin, press upward with the arms, as if trying to lift a weight over your head; hold this pressure at as great a tension as you can and rise on the toes (Fig. 1). Return the heels to the floor, and repeat the movement until the muscles are slightly tired.

Lesson V—Fig. 1.

Exercise 2

Stand with the toes on the door sill, hands grasping sides of door (as in Fig. 2) on a level with the chin, bend the body at waist, letting it drop downward slightly, and push backward with legs, making the arms support a part of the weight of the body, as well as resist the push of the legs; then bring the body to a straight line, inclined at such an angle backward that the arms will be straight, and throw the head as far backward between the shoulders as it will go.



Lesson V—Fig. 2.

From this position return to the first, and repeat until muscles are tired.

Lesson V—Fig. 3.

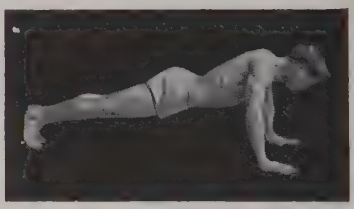
Exercise 3

Stand with toes just touching the door sill, as in illustration, hands grasping sides of door at level of the shoulders. Throw the body forward as far as possible, rising on the toes and bending the back inward at the loins (Fig. 3). Return to the starting position, and continue until tired.

Exercise 4

Assume the position of the figure in the illustration (Fig. 4) with the body rigid, toes and hands only touching the floor; then straighten the arms, lifting the upper part of the body until you are in the position shown in Figure 5. Allow the arms to bend, and lower the body until it is at the

Lesson V—Fig. 4.



Lesson V—Fig. 5.

starting position, without letting any part of it, except the hands and toes, touch the floor. Repeat the movement eight to fifteen times, or until you become tired.

Exercise 5

Support the weight of body, extended at full length, on hands and toes, arms straight and rigid as in illustration (Fig. 6). Bending body upward at waist, raise the hips as high as possible without shifting the position of the hands or feet,

Lesson V—Fig. 6.

then bending downward at the waist, let the body sink toward the floor as far as possible without bending the arms. Continue until tired.

SIXTH LESSON

In the development of all the strong men of the world, the lifting of weights has played a prominent part. In fact, at one stage of their development, the weights became the most essential part of their training outfit. They are depended upon to furnish the unusual development of the muscles of the chest and arms, which are characteristic of the very strong man. If the athlete takes other exercises, it is for the purpose of maintaining the other parts of his body in a healthy condition.

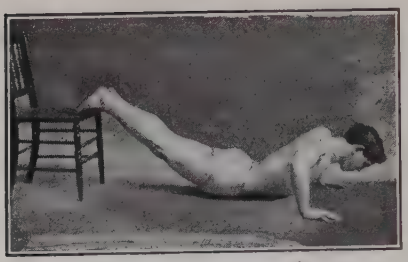
Any gymnasium director will tell you of the risks incurred by any but the most robust, who attempt to work with weights —heavy dumb-bells, etc. The object of the series of exercises given in this lesson is to supply the means for acquiring athletic development without subjecting the pupil to any risk of injury. The exercises will give as much work as could be obtained with bells as heavy as you could possibly lift, and, moreover, so divide the lifting strains that not only the muscles of the arms, shoulders, and back are hardened and strengthened, but every part of the muscular system receives an equal amount of work.

We shall stipulate no specified number of times these movements shall be taken at each exercise. The best guide is to repeat a movement until tired, gradually increasing the number as the endurance increases.

When this lesson is taken up, the pupil will find it advantageous to arrange the number of times the movements learned in preceding lessons are taken, so that they will altogether take ten to twelve minutes in the morning, and twenty to twenty-five minutes at night, and following them, practice the exercises given in this lesson until tired.

Exercise 1

Place the toes on the edge of a chair, hands resting firmly on the floor on either side of the body at shoulders, as in



Lesson VI—Fig. 1.

Figure 1. Straighten the arms and body simultaneously, until the body assumes posture shown in Figure 2. Return to starting position, without letting the body touch the floor, and alternately raise and lower the body until tired.

Exercise 2

Place the heels on chair, legs straight, hands resting on floor beneath the back and as far from the chair as they can be placed, body as in Figure 3, weight supported entirely by hands and heels. Straighten body and arms simultaneously, and try to lift the body at middle as high as possible, as in Figure 4. Then lower to first position and repeat until tired.

Lesson VI—Fig. 2.

Exercise 3

Take the position shown in Figure 5, the feet resting on a chair, the body with the left side turned towards the floor, the left hand braced against the floor, the right elbow pointing upward, and the right hand pressing against the right hip. Then straighten the body and left arm simultaneously until the position shown in Figure 6

Lesson VI—Fig. 3.

is reached, returning to the first position, and repeating until tired.

Then change the position of the body, bringing the right hand on the floor and left arm up, and continue the movement on that side until tired.

Lesson VI—Fig. 4.

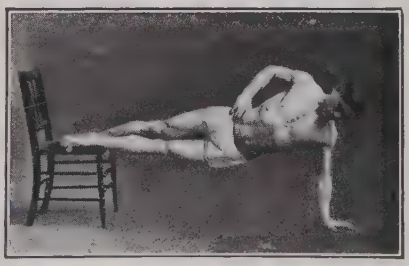
Exercise 4

Recline on a couch, as in illustration (Fig. 7), or across a bed, with about half the head extending beyond the edge; grasp the back of a chair at sides about five inches from the seat, arms fully extended; then lift the chair straight over the head, and bring it down towards the feet until it touches the limbs, keeping arms straight and rigid through the movement. Return to first position, still with the arms straight, and repeat until tired.

Lesson VI—Fig. 5.

Exercise 5

Assume a reclining position on the back, as in the preceding exercise, grasp the chair as before, but turn the right arm upward until the right elbow is over the face, and the chair is tilted at an angle, as in Fig-



Lesson VI—Fig. 6.

Lesson VI—Fig. 7.

ure 8. Then bring the chair down the left side of the body, held at arms' length, until the arms are extended downward toward the feet, and the right arm is extended diagonally across the body. Then lift the chair across to other side of the legs, bringing the left arm across the body, and swing the chair at arms' length, outward and toward the head, until the arms are extended as in illustration, but with the left arm crossing over the face. Then downward on that side and upward on the other to the starting position. Continue the movement until tired.

Lesson VI—Fig. 8.

SYSTEMATIC PHYSICAL TRAINING

Exercise with Apparatus*

General Directions

IN presenting this system of dumb-bell exercises, we wish to emphasize the necessity of carrying your physical culture into your habits of life to such an extent that you acquire the habit of involuntary right carriage and breathing. One may bathe, eat, and exercise according to rule; that is, by voluntary action, doing these things at regular times, and because you will to do them, and never attain to the greatest degree of physical or mental vigor, because as soon as the idea of doing them is absent from the mind, the wrong habits of breathing and carriage, acquired by years of custom, return, and the muscles you have been attempting to develop for use are allowed to lapse into disuse.

Strive to get into the habit of carrying the body correctly without having to think about it, and to breathe involuntarily in such a manner that the lungs are filled at every inspiration, and the blood is completely oxygenized all the time, and thus kept in the utmost degree of purity.

Fig. A.

The illustrations presented herewith show the wrong and the right method of carrying the body. If you permit yourself to habitually slouch along as in Figure A, the beneficial effects of your systematic exercise will, to a certain extent, be nullified. On the contrary, if you strive to

* The illustrations used in this course of physical culture with apparatus were posed for us by Professor Barker, of New York, and are reproduced here with his permission.

acquire the erect carriage shown in Figure B, you will find the functions of the body rapidly toning up. Carrying yourself thus, you will discover that deep, full respiration is natural and easy.

Fig. B.

Breath is life, and one cannot sacrifice too much time and care to remedying any defects in the manner of breathing. A few weeks' attention to this matter will fix the proper habit upon you, and you will involuntarily walk and breathe properly.

The system of exercises presented in the following lessons is reduced to the most scientific degree of brevity. The idea in mind was to present the fewest movements possible to achieve complete and harmonious muscular development. No part of the muscular anatomy has been neglected, and the pupil who masters the lessons thoroughly, and takes the exercises regularly, according to instructions, will not only experience benefit in improved health and physical power, but will acquire a perfection of form not to be acquired by any other method.

The instructions as to diet, bathing, etc., given at the beginning of the preceding system, should be followed faithfully in connection with these dumb-bell exercises.

A word of caution is needed as to the weight of the bells used, before we proceed. Do not go in for very heavy bells. More harm than good follows the persistent use of very heavy bells. For a healthy man, of fair physical powers, a pair of five or six pound bells will be found heavy enough. Avoid any that are heavier.

For the weak, and for women and children, bells of two or three pounds each are the most appropriate.

For the benefit of such persons as may desire to pay particular attention to the development of a certain part of the body, we give here an index of the parts the exercises used in this system are designed to develop, separating them into groups, so that the pupil, if he desires, may practice those movements which will most quickly develop the deficient part:

Exercises for the Neck

Third Lesson . . . . . Exercise 4.
Third Lesson . . . . . Exercise 5.

Exercises for the Shoulders and Arms

First Lesson . . . . Exercises 1, 2, 3, and 4.
Second Lesson . . . . . Exercise 5.
Third Lesson . . . . . Exercise 2.
Fifth Lesson . . . . Exercises 1 and 2.

Exercises for the Chest and Lungs

First Lesson . . . . . Exercise 6.
Second Lesson . . . Exercises 3 and 6.
Fourth Lesson . . . Exercises 1, 2, and 4.

Exercises for the Waist and Abdomen

Second Lesson . . . . . Exercise 5.
Third Lesson . . . . . Exercise 1.
Fourth Lesson . . . Exercises 3 and 5.

Exercises for the Pelvic Region and Legs

First Lesson . . . . . Exercise 5.
Second Lesson . . . . . Exercise 2.
Fifth Lesson . . . . Exercises 3, 4, and 5.

Exercise for Internal Organs

Second Lesson . . . . . Exercise 1.
Third Lesson . . . . . Exercise 3.

FIRST LESSON

Exercise 1

Grasp the dumb-bells firmly in the hands, stand erect, heels about four inches apart, with the arms hanging at the sides. Then bend the arm, flexing the muscles as firmly as possible, till the bell is brought above the shoulder, and the arm is bent

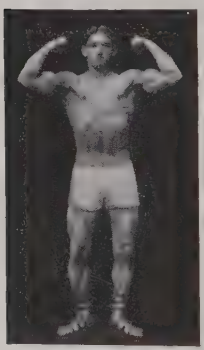
Lesson I—Fig. 1.

at the elbow as far as possible, and the elbow is raised until it is level with the shoulder. Return to the first position, and repeat twenty times with each arm (Fig. 1).

Exercise 2

Grasp the bells firmly, heels together, body erect. Let the arms bend at the elbows and the bells rest lightly against the shoulders; then, holding one arm in this position, thrust the other upward straight over the head, putting all the force into the movement you can (Fig. 2). Let that arm drop to the first position and thrust the other up; and so continue using the arms alternately, until the movement is repeated twenty times with each arm.

Lesson I—Fig. 2.



Lesson I—Fig. 3.

Exercise 3

Stand erect, with heels together, grasp the bells with the arms bent as in Figure 3. Then straighten both arms horizontally simultaneously, at the sides, using all the force you can, returning quickly to the starting position. Repeat twenty times.

Lesson I—Fig. 4.

Exercise 4

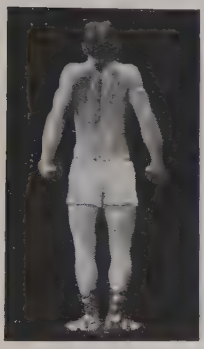
Stand with the arms extended straight in front of the body, as in Figure 4. Support the weight of the left arm on the right at the wrist, and raise both to the

height of the shoulders twenty times. Then shift the left arm beneath, and repeat twenty times.

Lesson I—Fig. 5.

Exercise 5

Stand erect, with the heels about four inches apart. Grasp the bells firmly, arms straight, and held rigid at the sides. Sink down, by bending the knees, keeping the body vertical, until in the position shown in Figure 5; then rise quickly to an erect position. Repeat eight to twenty times.



Lesson I—Fig. 6.

Exercise 6

Stand erect, with the heels together, the arms pointing straight down at the sides, the muscles held rigid. Hold the hands as nearly as possible in the same position, then simultaneously throw the shoulders and head as far backward as possible (Fig. 6). Return to the starting position and repeat twenty times.

SECOND LESSON

Exercise 1

Stand erect, with the heels together and the arms at the sides. Hold the muscles rigid, throw the shoulders back and rise on the toes, as in Figure 1. Then drop the heels to the floor, bend the body slightly forward, extend the arms forward at an angle of about forty-five degrees, and lift the toes from floor, as in Figure 2. From this position return to the first, and repeat twenty-five to fifty times.

Lesson II—Fig. 1.

Lesson II—Fig. 2.

Exercise 2

Stand erect, with the heels together, the arms pointing straight down at the sides; then straighten the left leg, lifting the left foot from the floor, and bring the arms straight out in front of the body, allowing the right knee to bend and the body to sink down as far as it is possible to recover the erect position from (Fig. 3). Repeat on each leg until tired.

Lesson II—Fig. 3.

Exercise 3

Stand erect, with the arms hanging naturally at the sides. Stoop a little forward, exhaling all the air possible from the lungs; then with great force swing the bells upward, turning the thumbs outward, bending the head and body backward, as in Figure 4, and taking a quick, deep breath as the movement is made. Repeat fifteen times.

Lesson II—Fig. 4.

Exercise 4

Stand erect, with the arms hanging naturally at the sides; grasp the bells firmly, flex the muscles, and draw the arms upward and backward, bending slightly forward, and endeavor to force the shoulders as far backward as possible (Fig. 5). Use all the strength you possess in making this movement. Repeat twenty to thirty times.

Lesson II—Fig. 5.

Exercise 5

Stand erect, with the arms at the sides, the muscles rigid. Then lift the right foot as high as possible, bending the body slightly forward, and endeavoring to make the knee touch the shoulder. Straighten, and bring the other knee up (Fig. 6). Repeat fifteen times with each leg.

Lesson II—Fig. 6.

Lesson II—Fig. 7.

Exercise 6

Stand with the heels a few inches apart, the arms at sides, and the bells gripped firmly. Turn the body to the left and bend sideways, trying to bring the left shoulder and left hip as near together as possible (Fig. 7). Exert the muscles of the left side particularly in making this movement. Then repeat with the right side. Make the movement twelve times on each side.

THIRD LESSON

Exercise 1

Stand with the heels three or four inches apart, toes turned out, the bells gripped tightly, the arms bent at the elbows until the bells are held in front of the body at the waist. Then step out with the left foot as far as you can, and at the same time strike outward and upward with the right arm to its full length, putting all your force in the blow (Fig. 1); return to the starting position, step out with the right foot, and strike with the left hand. In making this movement the body should be turned slightly at the waist, throwing the side from which

Lesson III—Fig. 1.

Lesson III—Fig. 2.

the blow is delivered to the front. Strike out fifteen times with each hand.

Exercise 2

Stand erect, with the arms at the sides, palms inward. Then raise the arms outward and upward, fully extended, keeping the backs of the hands up, and at the same time drop the head forward, and bend the body slightly at the waist (Fig. 2). Bring the hands to starting position quickly and straighten body. Repeat twenty to thirty times.

Exercise 3

Stand erect, grip the bells tightly, with the elbows pressed close to the sides, the hands pointing straight to the front, the wrists turned in. Exert all the pressure you can against the sides, and, with muscles of the forearms flexed, bend the wrists, bringing the hands as far as possible towards the body, then straighten the wrists (Fig. 4). Continue until tired.

Lesson III—Fig. 4.

Exercise 4

Assume a kneeling position, with the arms straight and the hands gripping the bells tightly, the muscles of the arms and the body flexed, pressing the body forward with the muscles of the thighs and backward with the arms. Then bend the head as far downward, between the arms, as possible, and throw it as far backward as possible (Fig. 5). Repeat until tired.

Lesson III—Fig. 5.

Exercise 5

Same position as in the preceding exercise, but twist the head from side to side twenty times.

FOURTH LESSON

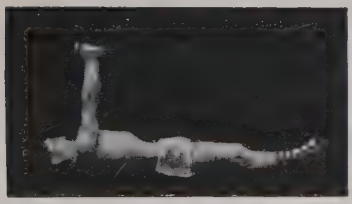
Exercise 1

Lie on the back, the body fully extended, the muscles rigid, the bells gripped tightly, and the arms extended at right angles to the body. Move the arms upward, with the bells held clear of the floor, until they touch above the head; then move the arms downward in a half circle toward the feet until the bells are brought against the thighs; then above the head (Fig. 1). Inhale deeply while making this movement. Repeat twenty times.

Lesson IV—Fig. 1.

Exercise 2

Assume the same reclining position as in the preceding exercise, with the arms extended at full length at the sides. Then raise both arms, simultaneously, until the bells are brought together above the body, as in Figure 2. Repeat twenty times.



Lesson IV—Fig. 2.

Exercise 3

Lie on the back, with the legs fully extended, the arms bent at the elbows, and the bells gripped tightly as in Figure 3. Then raise the legs alternately, twenty times with each leg.

Lesson IV—Fig. 3.

Exercise 4

Lesson IV—Fig. 4.

Lie on the back with the arms extended straight over the head, as in Figure 4. Raise the arms simultaneously, at full length, and move in half circle until the bells rest upon upper part of the thighs; return in similar manner to starting position, and repeat twenty times.

Exercise 5

Lesson IV—Fig. 5.

Lie on the back, the arms bent at the elbows and the bells held above the chest at either side; rise to position shown in Figure 5, and return to the starting position. Repeat fifteen to twenty-five times.

FIFTH LESSON

Exercise 1

Lie at full length on the stomach, with the arms extended to full length at right angles to the body, as in Figure 1. Then raise the arms from the floor backward as far as possible. Repeat fifteen to twenty-five times.

Lesson V—Fig. 1.

Exercise 2

Lie on the stomach, with the arms extended parallel with the body. Raise the hands as far as possible from the floor, as in Figure 2. Repeat twenty times.

Exercise 3

Lie on the stomach, with the weight of the upper part of the body resting on the elbows, as in Figure 3. Raise the

Lesson V—Fig. 2.

Lesson V—Fig. 3.

legs alternately as high as possible. Make twenty-five movements with each leg.

Exercise 4

Lie on the stomach, as in Figure 4, the muscles held rigid, forehead touching the bells; then bend the knee, and throw the leg as far upward and backward toward the body as possible,

Lesson V—Fig. 4.

Lesson V—Fig. 5.

at the same time raising the head and shoulders as far as possible without lifting the elbows from the floor; use the legs alternately, and make the movement from thirty to fifty times.

Exercise 5

Lie on the stomach, at full length, with the arms bent at the elbows, and the bells held close to the sides; raise the chest and legs from the floor simultaneously, as far as possible (Fig. 5). Repeat fifteen to twenty times.

PHYSICAL TRAINING FOR WOMEN

Introduction

THE promulgation and acceptance of the theory that systematic exercise produces beneficial results in all living beings, has brought more apparent benefit to womankind than any of the innovations of the century. It used to be considered an impossibility for women to compete in the intellectual drill of modern university education with men, because, under the unwonted strain, so many broke down in health, and, consequently, in mental vigor. The demonstration of the theorem, that a sound body and a sound mind are co-existent, and the introduction of those habits and exercises which contribute to physical strength, solved the problem. The college woman of to-day, who is a golfer, a walker, and a gymnasium worker, represents, as a class, one of the healthiest the sex presents.

In modern civilized life, woman is a much more artificial animal than man. She has, in fact, in a great many instances, become entirely exotic, or of indoor habits. The result is shown by the vast percentage of invalid women to be found in every community.

Already the results of fugitive efforts to induce women to resort to systematic physical training to give them the strength, health, and beauty that should be their heritage, are bearing fruit; and the stunning athletic girl, with her fine carriage, beautiful complexion, and enviable health, has appeared in every community. Unfortunately, she is oftener envied than emulated. If women would only learn that good circulation, good digestion, and muscular vigor are the chief aids to beauty, as well as to health, there would soon be comparatively few weak, wan, and sickly women in our country.

Perhaps one of the most powerful factors in deterring the majority of women from taking up some form of regular exercise—of body-building physical culture—is the erroneous idea that it would require sacrifices of time impossible for many to make because of their occupations, and entail hardships in the way of long and exhausting training and adherence to dietetic rules entirely foreign to what have been the habits of the individual.

This idea should be banished at once. Sensible, health-giving physical culture means none of these things. It merely means a hygienic method of life and sufficient attention paid to the muscular organization in the way of carefully selected, systematic exercise, to insure keeping the tissues in a wholesome state, and supplying them with a proper amount of blood.

The women who have learned this are far in advance of their sisters, not only in the matter of health, but in their ability to retain their good looks and youthful appearance.

Not so very long ago women had to "settle down" as patiently as they could to the belief that they were doomed to wear the signs of premature old age. Their lives were generally all after one pattern. Whether they married or remained single they began to grow fat at thirty; at forty they were stout; at fifty they were burdensome to themselves, and long before sixty they were hopelessly old. Those women who have learned the benefits of keeping the muscular part of their being in a condition of vigorous activity have proved how senseless such a programme is.

A woman who takes anything like proper care of her body is still girlish at thirty; at forty her charm is little impaired, and at fifty she is magnetic, attractive, and as keenly imbued with the delights of living as when she emerged from her teens.

If one could present a list of grandmothers of the present time who are still beautiful, attractive, and sought-after women, it would astonish the community.

These women are not different from the grandmothers who preceded them in any inherited powers; they have merely followed such a course of life as extends their period of vigor

and physical charm a little nearer what should be its normal term.

Physical education, like intellectual education, is something that should be kept at through life. Those who drop all intellectual exercises upon leaving school or college, rapidly deteriorate intellectually; and such as leave the health-giving exercises which they naturally indulged in as children out of their scheme of life upon reaching maturity, as quickly become physically degenerate—weak, easy prey for disease: and invariably, in the case of a woman, she quickly loses her beauty.

Because physical education is something that must be kept up all the time, it does not follow that it is a hard, grinding, monotonous affair, to be avoided even at the sacrifice of a few years of one's life. The right sort of physical training does not require much of one's time. It only requires the determination to undertake it, and then the formation of habits which will in a short time become almost second nature; which will not take up much time, and certainly not prove irksome.

Women and men are so different in physical attributes that there must of necessity be some difference in the methods adopted for producing the highest degree of physical and mental health in members of the two sexes. To a certain extent a woman may participate in all the exercises laid down for the development of a man. In the golden days of Greece, women contested with men in the public games, and often gave splendid exhibitions of courage, endurance, and dexterity, and there have been many examples of women who were physically as powerful as men. But in dealing with our modern women, the physical culturist must recognize certain differences and limitations and provide for them. With the exception of some of the more strenuous exercises included in the preceding systems, any woman of ordinary strength may take them with benefit. This applies especially to such exercises in the dumbbell system as are intended for the development of the arms, chest, and shoulders. These and the door exercises in the preceding system will be found especially effective for the development of plumper bodies, and firmer, more symmetrical busts.

For the woman, however, whose aim is to promote better

circulation, to increase her suppleness, and add grace and charm to her personality, while contributing to her general health, the following system of simple exercises is presented. They are such as any woman can easily perform without more than a few moments' study of the illustrations and accompanying directions. They will suffice to stimulate all parts of the muscular organization, and, if followed faithfully, in a very short time will assuredly produce astonishing results in improved appearance as well as in improved health.

It is necessary to understand a few general principles before beginning the exercises, and it is vastly important that any woman who takes up any system of exercises should firmly fix her mind on the object to be achieved. Determine to do what you attempt for a definite purpose. Keep this idea always in view, and when exercising make the movements with a will behind them. Do not exercise with the idea dominant that you are merely following the movements suggested by some one else. Keep the thought of accomplishing something always in mind. This is of the utmost importance, and if paid heed to, the pupil will be amply repaid in the quick results obtained.

Some attention should be given to the matter of hygienic clothing. You should not habitually squeeze any set of muscles entirely out of shape by any form of tight lacing, making it impossible for the normal blood supply to reach them, and then expect to remedy defects by exercise. If stays are worn they should be made to conform to the figure; no undue constriction should be applied, and they should not be worn at home, or at any time when comfort can be considered before appearance. When in the house a costume that is freely loose and permits the circulation of the air to all parts of the skin should be worn.

The employment of ordinary intelligence in the matter of eating is also necessary. No body habitually poisoned by a heterogeneous collection of candies, pastries, pickles, etc., can, by any method of physical culture, be made strong and beautiful. A woman's body has the same sort of tissue cells as a man's. These cells demand the same sort of nutrition, and this must be supplied in the blood, through the food which is

taken into the stomach. Plain, nutritious food is best, and a diet composed more largely of vegetables than meats will be found the most effective coöperating agent in producing what you desire. The use of coffee, tea, candies, pastries, and all forms of stimulants should be avoided. At your ordinary breakfast hour, a cup of cocoa, fruit, and a little toast should suffice. Eat your principal meal at noon. All the vegetables you desire, some whole grain bread, a little soup if you wish it, cocoa or milk, eggs, roast fowl, or beef, and a plain pudding for dessert, should furnish the articles of your menu. Supper should not be eaten later than seven o'clock, and should consist of vegetables, bread, butter, and stewed fruits.

Every woman should make it a point to take a walk of not less than a mile each day in the open air.

Exercise should be taken immediately after rising, and just before retiring, and with as little hampering clothing as the surroundings will permit. After exercise the skin should be brushed briskly with a flesh brush, and sponged off with tepid water.

In the following pages, when reference is made to "flexed" muscles, the pupil should understand that this is a condition of partial contraction, as much as can be produced by merely fixing the mind on it and forcing the muscular tissues to harden. To flex the muscles of the arms and shoulders, close the hands tightly and imagine you are holding a rather difficult weight. If standing, rise to full height, and exert such effort as would be required in sustaining a heavy weight.

After going through any particular exercise the required number of times, as specified in the following instructions, the muscles should be allowed to relax completely, or become soft and flaccid. Unless this is practiced quite as carefully as the movements themselves, the very best results cannot be obtained. The contractions produced in muscular tissue by using them, tend to force out the blood and other liquids from the fine capillary vessels which lie all through the system; and when the tissue is relaxed it permits a new supply of fresh, nutritious blood to flow in, bringing new life and energy to the cells of the muscular system.

Special Exercises for Women

WHEN you meet a woman her carriage is the first characteristic that impresses you. If it is upright, buoyant, and graceful, the chances are ten to one she will impress you as being a pretty woman, whether her face is beautiful or not. Nine-tenths of the reigning beauties of to-day owe their elevation more to proper and graceful carriage than to mere beauty of features.

Good carriage will to a large extent hide any defect of form. The women of the stage, credited with being the possessors of Venus-like forms, owe their position in popular estimation to the great attention they pay to carriage. If any woman can stand properly, hold her body properly poised, and walk gracefully, she will certainly be set down as a pretty and well-formed woman, wherever she goes.

Proper carriage, the physiologist will tell you, is impossible without proper muscular development. And so it is; yet, a long stride has been taken when a woman decides to make an effort to stand and walk naturally. When the attempt is first made, if improper methods have been habitually employed, it will quickly tire you; but persistence, and a brief period devoted to practice of the movements shown herewith, will make it easy.

Figure 1 shows the right way to stand. The weight should be evenly distributed on the ball and heel of the foot; the limbs should be held straight, and slightly—very slightly—inclined forward from the perpendicular; the abdomen should be held in; the bust should form a graceful curve from waist to neck; the spine should be perpendicular; the shoulders

Fig. 1.

should be thrown back until the space between them is flat and straight, and the head should be held firmly erect—not allowed to drop forward, or incline to either side. In this position the internal organs are permitted free play, and no difficulty is encountered in breathing deeply. Assume this position, hold it for a few moments, and inhale several slow, deep breaths before commencing your exercises every day, and it will quickly become easy, and eventually habitual.

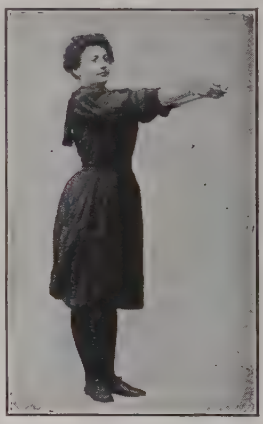


Fig. 2.

Exercise 1

Stand erect, arms extended straight before the body, as in Figure 2; hands clasped, muscles flexed. Then swing the arms apart and backward, in a horizontal plane, to position shown in Figure 3. Return to first position, and repeat eight to twelve times. Make the movements quickly.

Fig. 3.

Exercise 2

Place the palms of the hands together over the head, arms extended; throw arms backward as far as possible, to position shown in Figure 4, then swing them forward and downward, bending body

at the waist, but hold knees rigid till you touch the floor (Fig. 5), or come as near to it as you can. Swing arms back over the head, and repeat ten to thirty times. This exercise may be varied by standing with the feet about fourteen inches apart, and swinging the arms as far between the legs as possible on the downward swing.

Fig. 4.

Exercise 3

Stand erect, hands clinched, arms straight and inclined downward and backward as in Figure 6; muscles held firmly flexed, chest thrown forward. Then bring the arms forward and cross them in front of the body, alternating them above and beneath, and crossing them as far as possible without bending the elbows, as in Figure 7. Return to first position, and repeat twenty to thirty times.

Fig. 5.

Exercise 4

With the body in the position shown in Figure 6, slowly straighten the arms and raise them until they are brought as high as possible, turning the backs of the hands to the front, as the movement is made. Reverse this movement, return to starting position, and repeat ten times.

Fig. 6.

Fig. 7.

Exercise 5

Stand erect, arms bent at elbows, hands clinched and resting against shoulders, as in Figure 8. Then, thrust up as far as possible above the head with each arm alternately (Fig. 9), as if you were striking at some object slightly out of your reach. Repeat twelve to thirty times with each arm.

Exercise 6

Stand as in Figure 8. Thrust up the arms simultaneously to their full length at either side, as in Figure 10. Return to starting position and repeat fifteen to twenty times.

This and the preceding exercise may be varied by striking straight out in front with the arms, instead of upward.

Fig. 8.

Fig. 9.

Exercise 7

Stand as shown in Figure 10, with the arms extended horizontally, and the hands clinched; then bend the body to the right without changing relative position of the arms, until the position shown in Figure 12 is reached. From this position return to first position and bend in opposite direction until the left arm points down and the right one up. Repeat eight to twenty times.

Exercise 8

Stand with arms extended as in Figure 11. Turn the body at waist as if on a pivot until right arm points in straight line

Fig. 10.

Fig. 11.

with the toes, then swing left arm to the front and right to the rear. Make this movement fifteen to twenty times.

Exercise 9

Stand as in Figure 13, with the shoulders held as far back as possible, muscles firmly flexed. Turn the arms slowly inward, pulling the shoulders as high as possible until position shown in Figure 14 is reached. Relax and begin over again. Repeat six to ten times. Take in a full breath before beginning the movement and exhale slowly as the arms are brought forward to final position.

Fig. 12.

Exercise 10

Stand erect, arms at sides, hands clinched; step forward with right foot and strike forward and slightly upward with right hand, swinging the left arm

Fig. 13.

backward as far as it will go, as in Figure 15. Resume first position and strike out with left arm, etc. Repeat ten to twenty times.

Exercise 11

Stand erect, arms hanging at sides, hands clinched; kick out with the right foot until foot and leg are as nearly as possible at right angles to the rest of the body, as in Figure 16. Bring right foot firmly back to the floor, and kick out with left. Repeat twelve to twenty times with each leg.

Fig. 14.

Exercise 12

Stand erect, arms at sides, and kick backward as far as possible, throwing the head as far backward as possible as each kick is made. Use the legs alternately. Repeat eight to twelve times with each foot.

Fig. 15.

Exercise 13

Assume a reclining position, as shown in Figure 17. Hands clinched. Raise the head and trunk slowly until a sitting position is reached, bending the arms at elbows and bringing clinched hands firmly against the chest as

in Figure 18. Return to first position, and repeat until tired.

Fig. 16.

Exercise 14

Assume the position shown in Figure 17. Raise the limbs simultaneously to the perpendicular position, as in Figure 19. Let the legs sink slowly to starting position, and continue until tired.

Fig. 17.

Exercise 15

From the position shown in Figure 17 raise each leg alternately as shown in Figure 20—twenty to thirty times.

Exercise 16

From the reclining position shown in Figure 17 lift one leg at a time until the hands can be clasped back of knee, then pull the thigh as

Fig. 18.

Fig. 19.

firmly against the abdomen as possible and release, letting the leg drop back to starting position. Repeat the movement

Fig. 20.

ten to fifteen times with each leg, using them alternately.

Exercises 14, 15, and 16 are recommended to women suffering from various forms of female weakness. In such cases, the exercises should be taken on a lounge or platform, where the feet can be elevated ten to twelve inches higher than the head.

Exercise 17

Assume the position shown in Figure 21, with the body resting easily on the floor, toes touching floor, hands placed firmly on floor directly under each shoulder, finger tips touching, arms at right angles to the body. Straighten arms and legs simultaneously until body is lifted clear of the floor, and supported on the hands and toes only, as in Figure 22. Repeat until tired. This is a trying movement, and if you find it too strenuous at the start, begin by lifting the upper part of the body only, allowing it to bend at waist, and gradually accustom yourself to the movement.

Fig. 21.

Fig. 22.

Exercise 18

Assume the position shown in Figure 22. Lift the left hand from the floor and throw the left arm upward and backward, turning the body simultaneously until the position shown in Figure 23 is reached. Return to first position and elevate the right arm. Repeat until ten movements are made with each arm.

Fig. 23.

READING JOURNEYS

FOR THE HOME

IN

THE YOUNG FOLKS TREASURY

THE purpose of these sixty-one Reading Journeys is to help you find your way through every volume and section of THE TREASURY.

Too often a child will pick up a volume which has an attractive title, or in which he finds an interesting story, not realizing that, if he were guided, he might discover plenty of other stories or articles in other volumes that he would enjoy even more. These Journeys encourage you to use the *whole* TREASURY.

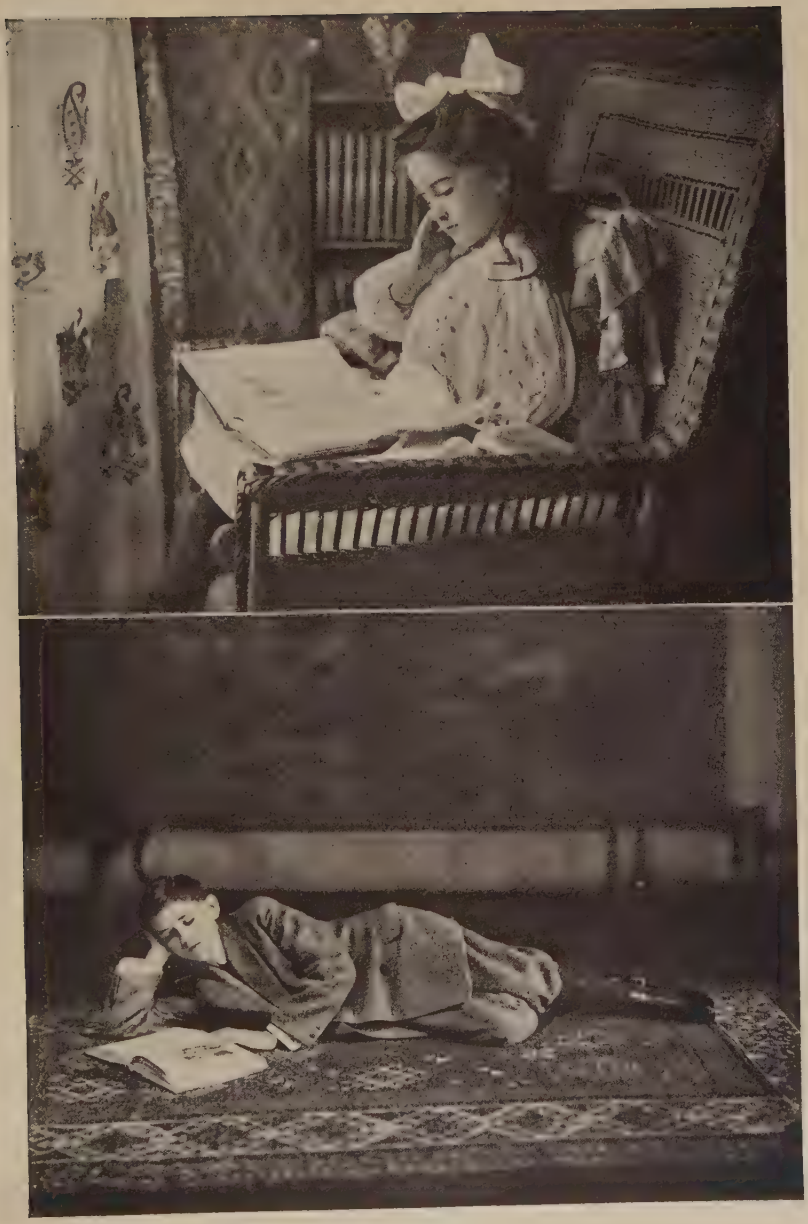
Sometimes you become so much attracted to a given subject that you would like to read *steadily* about it. These lists show you how you can pursue such a theme for weeks, and even months.

The Journeys will also help you find your *favorite* fields of reading.

Finally, these lists are graded. The first eleven courses are for children of say three to six, whose mothers read to them. Journeys XII to XXXIV will be found most interesting by boys and girls of from five or six to nine or ten. The later Journeys are especially for older young people.

Many great men and women of the past, who made the most of what was within their reach, never had such extensive and useful opportunities for self-improvement as are outlined for you in these mental travels into the Realms of Gold.

Parents will find these Journeys most suggestive in advising their children and young people in the use of THE TREASURY. The General Index at the end of Volume XII and the courses of reading based on the main human virtues in "The Mother's Book" will also be found useful for a similar purpose.



HOME STUDY.

1. JINGLES FOR BABIES

In addition to about fifty nursery rhymes listed in the first reference given below, here are a score of other rhymes and jingles. Some of these are intended to use as finger-plays and action-plays. Others are just the immortally simple and funny melodies of Mother Goose.

		Vol.	Page
1.	Nursery Rhymes	I	1-14
2.	What Does Little Birdie Say?	I	15
3.	Good Night	I	15
4.	Baby-Land	I	17
5.	Polly	I	19
6.	I Like Little Pussy	I	22
7.	The Gravel Path	I	23
8.	Do You Know How Many Stars?	I	26
9.	Where Do All the Daisies Go?	I	27
10.	Twinkle, Twinkle	I	79
11.	Pretty Cow	I	80
12.	The Sugar-Plum Tree	IX	91
13.	A Dutch Lullaby	IX	91
14.	Ding-Dong Bell	XII	17
15.	A Jolly Good Laugh	XII	124
16.	Three Blind Mice	XII	130
17.	My Dame Has a Lame Tame Crane	XII	132
18.	Scotland's Burning	XII	133

2. HOME STORIES

Little tales of familiar things, mostly of matters and events about the home, to help the little one interpret the world that is just about him.

		Vol.	Page
1.	The Three Bears	I	32
2.	Titty Mouse and Tatty Mouse	I	56
3.	The Spider and the Flea	I	60
4.	Puss in Boots	I	126

		Vol.	Page
5.	Little Red Riding-Hood	I	140
6.	Jack and the Beanstalk	I	145
7.	How to Tell a True Princess	I	149
8.	The Lark and Its Young Ones	I	230
9.	Tell Us a Tale	I	496
10.	Little Red Hen	I	497
11.	In Search of a Baby	I	498
12.	Jock and I and the Others	I	500
13.	The Visit to Santa Claus Land	I	507
14.	The Rose of Hungary	II	500
15.	The Story of the Big Green Doll	IV	11
16.	Georgie's Penny	IV	20
17.	Babies in China	VI	5
18.	Babies in Greece	VI	8
19.	Babies of the Great Tents	VI	11
20.	Babies of Kafirland	VI	15
21.	Babies in Spain	VI	18
22.	A Letter from a Soldier Father	VII	29

3. STORIES IN VERSE

These are some of the shortest and simplest stories that can be told to the little child, who loves them and remembers them better because of the lilt of rhyme and rhythm.

		Vol.	Page
1.	The Death and Burial of Cock Robin	I	25
2.	The House That Jack Built	I	28
3.	A Was an Ant	I	86
4.	The Wind and the Moon	I	101
5.	The Spider and the Fly	I	109
6.	Thanksgiving Day	I	168
7.	Tell Us a Tale	I	496
8.	The Calf	V	466
9.	The Baby	XI	18
10.	The Fairies	XI	379
11.	Simple Simon	XII	3
12.	Three Little Kittens	XII	6
13.	Old King Cole	XII	8
14.	There Was an Old Woman	XII	13

4. LITTLE SONGS FOR LITTLE FOLKS

HERE are a score of songs, some of them here set to music and some not, for the mother to sing and chant to her child during the day and at the sleepy hour of bedtime.

		Vol.	Page
1.	Sweet and Low ..... I 16;	XII	18
2.	Simple Simon	XII	3
3.	Cradle Hymn	I	21
4.	Hush-a-Bye Baby	XII	7
5.	Sleep, My Treasure	I	23
6.	Baby Bunting	XII	10
7.	Lullaby of an Infant Chief	I	24
8.	Little Boy Blue	XII	12
9.	I Saw Three Ships	I	85
10.	There Was an Old Woman	XII	13
11.	Child's Evening Hymn	I	111
12.	Pat a Cake (Baby's Hand-Play)	XII	15
13.	Sweet Story of Old	I	186
14.	My Shadow	I	186
15.	Humpty Dumpty	XII	16
16.	Ride a Cock-Horse	XII	16
17.	Home, Sweet Home	XI	1
18.	The Baby	XI	18
19.	Guardian Angels	XII	22
20.	Cradle Song	XII	24
21.	Cradle Song	XII	26

5. BABY BEASTS

EASY descriptions, some funny, all interesting, of the daily life of the young animals, mostly of the near and tame varieties, but a few of the forest and wild life.

		Vol.	Page
1.	The Donkey	V	439
2.	The Rat	V	441
3.	The Gorilla and the Chimpanzee	V	443
4.	The Elephant	V	444

		Vol.	Page
5.	The Hippopotamus	V	445
6.	The Rhinoceros	V	447
7.	The Tiger	V	449
8.	The Camel	V	451
9.	The Giraffe	V	453
10.	The Kangaroo	V	455
11.	The Dog	V	457
12.	The Kitten	V	460
13.	The Colt	V	462
14.	The Lamb	V	464
15.	The Calf	V	466
16.	The Llama	V	468

6. FUNNY STORIES

Why are so many collections of stories so deadly serious? Laughter is the best relaxation for little ones, and it is said to be as good as crying, if not better, to open the lungs, exercise the muscles, and relieve tension. Here are a few of the funny things of this sort that can be found in The Treasury:

		Vol.	Page
1.	Old Mother Hubbard	I	18
2.	The Mouse and the Sausage	I	50
3.	Teeny Tiny	I	58
4.	Why the Bear Has a Stumpy Tail	I	70
5.	The Three Little Kittens	I	80
6.	There Was a Little Girl	I	82
7.	The Cat, the Monkey, and the Chestnuts	I	221
8.	The Musicians of Bremen	I	293
9.	Tit for Tat	I	452
10.	Little Red Hen	I	497
11.	The Miller, His Son, and their Ass	I	506
12.	The Greedy Brownie	I	511
13.	The Fairies' Passage	I	513

READING ALOUD IN THE HOME

7. FRIENDLY MEN AND ANIMALS

THE previous division leads naturally into this somewhat different one, in which we learn of men, friendly men, living with friendly beasts, and loving them and learning to understand them.

		Vol.	Page
1.	The Wren and the Bear	I	42
2.	Chicken-licken	I	45
3.	The Fox and the Cat	I	47
4.	The Rats and Their Son-in-Law	I	48
5.	The Three Little Pigs	I	71
6.	Kindness to Animals	I	77
7.	How Doth the Little Busy Bee	I	77
8.	The Snowbird's Song	I	217
9.	The Alligator and the Jackal	I	446
10.	Jock and I and the Others	I	500
11.	The Tale of Peter Rabbit	I	503
12.	The Jellyfish and the Monkey	II	129
13.	Miss Tabbycat's Adventures	IV	271

8. LITTLE PLAYS INDOORS AND OUT

THAT children need to be taught how to play is a discovery to many mothers. Here are a few plans for making the most of homely opportunities in the house and neighborhood, and also some dances, rounds, and march-songs to vary the playhour.

		Vol.	Page
1.	Playthings for the Baby	X	3
2.	Kitchen Playthings	X	24
3.	The Porch as a Playground	X	27
4.	Home Amusements	X	29
5.	Sing a Song of Sixpence	XII	1
6.	Oh, Dear! What Can the Matter Be?	XII	2
7.	Hot Cross Buns	XII	4
8.	Polly, Put the Kettle On	XII	4
9.	Baa, Baa, Black Sheep	XII	5

		Vol.	Page
10.	Mistress Mary, Quite Contrary	XII	5
11.	Hickory, Dickory, Dock	XII	6
12.	Three Little Kittens	XII	6
13.	Pussy Cat, Pussy Cat	XII	7
14.	Hush-a-Bye, Baby	XII	7
15.	Hey Diddle Diddle	XII	9
16.	Goosey, Goosey, Gander	XII	10
17.	Baby Bunting	XII	10
18.	Cock-a-Doodle-Doo	XII	11
19.	Tom, Tom, the Piper's Son	XII	11
20.	Georgy Porgy	XII	12
21.	Little Boy Blue	XII	12
22.	There Was an Old Woman	XII	13
23.	Taffy Was a Welshman	XII	14
24.	Pat a Cake	XII	15
25.	Humpty Dumpty	XII	16
26.	Ride a Cock-Horse	XII	16

9. LITTLE PEOPLE IN MANY LANDS

Even if the child is not yet quite old enough to read for himself, yet he will enjoy listening to these childlike adventures of real little girls and boys in other countries. It does nursery inhabitant good to go, even in imagination, to

> "Where the golden apples grow,
> Where, below another sky
> Parrot islands anchored lie."

		Vol.	Page
1.	Foreign Children	I	84
2.	Foreign Lands	I	104
3.	How Peggy Saw Holland	VI	23
4.	Peggy Visits Morocco	VI	25
5.	Peggy in Persia	VI	27
6.	A Trip to Egypt	VI	29
7.	Peggy Looks for Diamonds in South Africa	VI	31
8.	A Trip to the South Sea Islands	VI	34
9.	Peggy Visits New Zealand	VI	36
10.	A Trip Through Italy	VI	38

		Vol.	Page
11.	Dodo, Baby, Do	XII	20
12.	Japanese Lullaby	XII	23
13.	Lithuanian Lullaby	XII	25

10. LITTLE STORIES OF THIS WORLD'S WONDERS

The wonders here described in simple language are not like "the Seven Wonders," once built by man, but the wonders of ice and snow, of silver and gold, of mercury and coal, of earth's natural treasures. The child sees these things around him, he asks questions about them, and here they are answered, in a dialogue with a little child.

		Vol.	Page
1.	Talks About Water	VIII	3
2.	Icebergs	VIII	7
3.	Steam, Clouds, and Rain	VIII	12
4.	Silver	VIII	22
5.	Gold	VIII	24
6.	Mercury	VIII	25
7.	Coal	VIII	30
8.	Phil and the Little Professor	VIII	35
9.	The Tree Men	VIII	39
10.	The Earliest Lessons	VIII	43
11.	When Man Found Fire	VIII	49
12.	Some Early Hunters	VIII	55
13.	Man's Early Dreams	VIII	61

11. PICTURES FOR LITTLE PEOPLE

This is not wholly a Reading Journey, although a few pictures that little people love are described for the mother in the twelfth volume. It is a selection of twenty-five subjects from the hundreds in The Treasury that are a delight to children. The page-references are sometimes to the facing-pages opposite the illustrations, but more often to the begin-

ning of the article or story that the mother will wish to retell to her little one.

		Vol.	Page
1.	Thumbelina Came to Live with the Field-Mouse.. I	*Frontispiece*	
2.	Simple Simon Went A-Fishing	I	6
3.	There Was an Old Woman Lived in a Shoe.....	I	8
4.	Little Miss Muffet	I	8
5.	Old Mother Hubbard	I	18
6.	The Death of Cock-Robin	I	26
7.	"Who Has Been Tasting My Soup?"	I	34
8.	I Was the Giant Great and Still, That Sits Upon the Pillow-Hill ..... I 82;	XII	260
9.	Do Not Grieve, Dear Master	I	126
10.	The Tortoise and the Hare	I	222
11.	The Fox Without a Tail	I	222
12.	The Prince Starts Homeward with His Treasure	I	322
13.	"Ping!" Went the Bowstring II	*Frontispiece*	
14.	"What Day of the Month is It?" He said..... IV	*Frontispiece*	
15.	Surprise	V	454
16.	"How Comical"	V	462
17.	Two Squirrels	V	558
18.	Zulu Woman (South Africa) Making Mats	VI	68
19.	Interior of a Cottage	X	4
20.	The Baby ..... XI 18;	XII	247
21.	The Holy Night	XI	420
22.	Feeding Her Birds	XII	248
23.	Grandmother's Treasure	XII	250
24.	The Fairies Sing Titania to Sleep.. III *Frontispiece;*	XII	258
25.	Mother and Child	XII	262

12. FAIRY LAND

"Wee folk, good folk,
Trooping all together;
Green jacket, red cap,
And white owl's feather."

What would this world be without fairies? They brighten our everyday life, take us in fancy out to the woodlands and streams, and help us believe in a life where all "Wee Folk" are "Good Folk," and where all our dreams come true.

		Vol.	Page
1.	Cinderella	I	35
2.	The Three Spinners	I	62
3.	Hansel and Gretel	I	113
4.	The Sleeping Beauty	I	150
5.	The Magpie's Nest	I	169
6.	The Fairies of the Caldon Low	I	169
7.	The Hardy Tin Soldier	I	232
8.	The Fir Tree	I	236
9.	The Darning-Needle	I	245
10.	Thumbelina	I	248
11.	The Tinder-Box	I	258
12.	Seven at One Blow	I	279
13.	One Eye, Two Eyes, Three Eyes	I	286
14.	The Fisherman and His Wife	I	296
15.	Little Snow-White	I	304
16.	The Goose-Girl	I	313
17.	The Golden Bird	I	318
18.	Beauty and the Beast	I	326
19.	The White Cat	I	335
20.	The Story of Pretty Goldilocks	I	341
21.	Jack the Giant-Killer	I	356
22.	Connla of the Golden Hair and the Fairy Maiden	I	389
23.	Pinocchio's Adventures in Wonderland	I	394
24.	The Son of Seven Queens	I	436
25.	White Magic	I	516
26.	The Brownies	I	517
27.	The Story of Peter Pan	I	522
28.	The Birthday Honors of the Fairy Queen	I	531
29.	The Star-Lovers	II	144
30.	The Sand Fairy	III	302
31.	Uncle David's Nonsensical Story	III	436
32.	The Fairies	XI	379

13. OUTDOOR SPORTS THE WORLD AROUND

THESE travel-sketches give interesting information of many lands.

		Vol.	Page
1.	Billy	III	294
2.	The Coming of Angus Og	III	333
3.	Sports in Canada	VI	105
4.	Games and Feasts in Japan	VI	110
5.	A Picnic in the Australian Bush	VI	132

		Vol.	Page
6.	The Hunt at Sunset	VI	144
7.	Reveille	VI	155
8.	The Laplanders of the Tundra	VI	156
9.	Hunting with Eskimo Dogs	VI	159
10.	Big-Game Hunters of the Arctic	VI	191
11.	The Gypsy Trail	VI	207
12.	The Raggle, Taggle Gypsies, O	VI	209
13.	The Merry Guide	VI	221
14.	Vitai Lampada	VII	38
15.	Life in a Lumber Camp	VIII	538

14. HOME SONGS

Some of the dear old songs, with and without music, that have to do with home and mother and the things that are dearest in life.

		Vol.	Page
1.	The Waves of Breffney	VI	282
2.	Home	VI	539
3.	Mother's Song	XI	3
4.	Work	XI	110
5.	Farm-Yard Song	XI	185
6.	O Captain! My Captain!	XI	197
7.	Drifted Out to Sea	XI	230
8.	Griggsby's Station	XI	248
9.	The Children	XI	365
10.	The Day is Done	XI	367
11.	Letty's Globe	XI	456
12.	Old Folks at Home	XII	27
13.	The Old Oaken Bucket	XII	30
14.	My Old Kentucky Home	XII	31
15.	Home, Sweet Home	XII	34
16.	Oft in the Stilly Night	XII	36
17.	The Light of Other Days	XII	39
18.	Ben Bolt	XII	42
19.	Auld Lang Syne	XII	44
20.	Old Dog Tray	XII	46
21.	Loch Lomond	XII	48
22.	When Shall We Three Meet Again?	XII	51
23.	The Meeting of the Waters	XII	52
24.	Massa's in the Cold, Cold Ground	XII	54
25.	Jingle, Bells	XII	78
26.	The Quilting Party	XII	127

15. STORIES OF FUN AND FANCY

"ROLLICKING" is the word to apply to many of these tales of harmless mischief, good-fellowship and lively imagination. Half of them are in prose and half of them are in sprightly verses.

		VOL.	PAGE
1.	Dolly Dimple	I	502
2.	The Black Snail with a White Heart	III	257
3.	The Saucy Sea Horse	III	259
4.	The Priest and the Mulberry Tree	III	260
5.	Mending the Clock	III	262
6.	Granny	III	271
7.	The Doll that Was Rich	III	281
8.	Hinks, Silent Partner	III	289
9.	Fellow Passengers	III	292
10.	Boum-Boum—A Tale	III	315
11.	The Story of the Rabbit and the Hippopotamus	IV	532
12.	The Brahman, the Tiger, and the Six Judges	IV	533
13.	The Story of a Tailor	IV	536
14.	A Witty Hindu Tradition	VI	101
15.	The One-Hoss Shay	XI	251
16.	The Baker's Tale	XI	328
17.	The Modern Hiawatha	XI	330
18.	The Jumblies	XI	331
19.	Nocturnal Sketch	XI	334
20.	Father William	XI	337
21.	Little Billee	XI	339
22.	Captain Reece	XI	340
23.	Sorrows of Werther	XI	343
24.	The Purple Cow	XI	344
25.	The Invisible Bridge	XI	344
26.	The Lazy Roof	XI	345
27.	My Feet	XI	345
28.	The Hen	XI	345
29.	The Cow	XI	346
30.	The Chimpanzee	XI	346
31.	Some Geese	XI	346
32.	Faithless Nelly Gray	XI	347
33.	The Elderly Gentleman	XI	349
34.	In the Night	XI	351

		Vol.	Page
35.	Poor Brother	XI	351
36.	The Sea	XI	351
37.	The September Gale	XI	351

16. HOW OTHER CHILDREN LIVE

Of the strange houses, the queerer food, the unusual family customs and the extraordinary schooldays of boys and girls of other lands, these stories tell.

		Vol.	Page
1.	Foreign Children	I	84
2.	Travel	VI	1
3.	John of England	VI	43
4.	Running Rabbit, "Little Indian"	VI	45
5.	Suzanne of France	VI	49
6.	Maisanguaq, "Frosty Eskimo"	VI	52
7.	O Hana San of Japan	VI	59
8.	Ismail of the Upside Down Land	VI	63
9.	Mang'anda of Central Africa	VI	68
10.	Filipe and Serafina of Spain	VI	76
11.	David of the Holy Land	VI	81
12.	Alexis of Russia	VI	84
13.	Hugh in India	VI	87
14.	Marietta of Italy	VI	91
15.	Games and Feasts in Japan	VI	110
16.	What They Play in Africa	VI	115
17.	Games and Festivals in China	VI	121
18.	The River Holiday in India	VI	129
19.	The Caravans of the Great Deserts	VI	176
20.	Mules, Mosquitoes, and Menageries in Venezuela	VI	202

17. STRANGE HOMES AND THEIR TENANTS

The animal volume is one of the most useful and interesting books in The Treasury, but you may not at first know just how to find your way about in it. This Reading Journey takes you along a definite pathway in its pages. We have selected but a few of the passages that tell about the odd houses and shelters that animals, birds, and insects make or

find for themselves. We have not tried to point them all out. You can easily find them.

		Vol.	Page
1.	The Guenons	V	13
2.	The Little Well-Digger	V	44
3.	Prairie-Dogs	V	141
4.	Beavers	V	142
5.	Edentates, or Toothless Mammals	V	212
6.	The Armadillos	V	214
7.	The Marsupials	V	218
8.	Swifts	V	245
9.	Bower-Birds	V	258
10.	Common Swallows	V	271
11.	Storks	V	289
12.	Land-Tortoises	V	300
13.	Turtles	V	300
14.	The Salmon	V	332
15.	Dragon-Flies and May-Flies	V	364
16.	Bees	V	369
17.	Trap-Door Spiders	V	391
18.	The Water-Spiders	V	393
19.	Crustaceans	V	397
20.	Sea-Urchins, Starfishes, and Sea-Cucumbers	V	409
21.	The Chambered Nautilus	V	416
22.	Gastropods	V	416
23.	Birds' Nests	V	528
24.	The Honey Bees	V	563
25.	The Black Crickets	V	588

18. HOME LIFE DAY BY DAY

These readings, especially those from Volume X, are selected to help us find right in our own homes our best happiness, and to contrive happy things to do together.

		Vol.	Page
1.	The Little Land	I	97
2.	Bed in Summer	I	105
3.	A Good Play	I	106
4.	The Land of Story Books	I	172
5.	Making the Home Cheerful	X	197
6.	Music as a Help to Home Happiness	X	202
7.	How to Entertain a Guest	X	206

		Vol.	Page
8.	Table Talk in the Home	X	247
9.	Our Home Sundays	X	255
10.	Our Family Camp	X	257
11.	How to Read	X	273
12.	Hints for People Who Do Not Read	X	277
13.	On Readers and Books	X	281
14.	Toys Every Child Can Make	X	287
15.	Bird Houses	X	346
16.	Making the Home Garden	X	371
17.	How to Keep Personal Accounts	X	393

19. MEN AND WOMEN THE WORLD LOVES

Here is the first walk we have taken in two of the most fascinating volumes of our set, those devoted to biography. All those who have been named below were not famous, few of them were noted because of war or bloodshed, but the world loves them because there was something winsome or quaint or unselfish in their lives, and their life-stories are often as interesting as any fiction.

		Vol.	Page
1.	The Story of Nathan Hale	VII	123
2.	The Story of Robert E. Lee	VII	174
3.	Bonnie Prince Charlie	VII	225
4.	Sir Philip Sidney	VII	245
5.	A Nobleman of Japan	VII	264
6.	General Charles George Gordon	VII	273
7.	Brother to the Lepers	VII	282
8.	The Greatheart of the Labrador	VII	292
9.	The Author of "Alice in Wonderland"	IX	48
10.	The Children's Poet, Longfellow	IX	55
11.	Sir Walter Scott, Story-Teller	IX	62
12.	A Day with Charles Dickens	IX	74
13.	A Day with Thackeray	IX	81
14.	The Fun-Loving Eugene Field	IX	89
15.	Auld Blackie	IX	107
16.	Johnny Appleseed	IX	112
17.	The Vicar of Morwenstow	IX	116
18.	Old Doctor Johnson	IX	130
19.	The Shoes Through the Window	IX	135
20.	Charles Lamb	IX	323
21.	Oliver Goldsmith	IX	335

		Vol.	Page
22.	Afternoon Tea in Wordsworth's Cottage	IX	349
23.	Walter Savage Landor	IX	353
24.	Henry David Thoreau	IX	363
25.	Sidney Lanier	IX	373
26.	Walt Whitman	IX	375

20. ADVENTURES WITH ANIMALS

These are mostly true stories of the love of men for their pets or of their adventures in the hunting of animals for food or service. Some of them are humorous, some exciting, and one or two of them beautifully pathetic.

		Vol.	Page
1.	Rab and His Friends	IV	315
2.	The Hunt of the Wild Horse	IV	329
3.	On the Night Trail	IV	339
4.	Rataplan, Rogue	IV	348
5.	My Lion Friend	IV	357
6.	A Narrow Escape from a Tiger	IV	364
7.	The Adventures of a Loon	IV	372
8.	Moti Guj—Mutineer	IV	386
9.	My Pet Starling	IV	393
10.	The King of the Trout-Stream	IV	401
11.	The Homesickness of Kehonka	IV	433
12.	The Story of a Homer	IV	443
13.	A Struggle with a Devil-Fish	IV	451
14.	Among the Lions of Algiers	IV	461
15.	From Jungle to Zoo	VI	179
16.	Big-Game Hunters of the Arctic	VI	191

21. PARTIES AND PLAYTIME

		Vol.	Page
1.	The Porch as a Playground	X	27
2.	Indoor Games	X	31
3.	Tricks	X	75
4.	Puzzles and Conundrums	X	86
5.	Acting Charades and Little Plays	X	103
6.	A Garden Obstacle Race	X	156
7.	Crazy Croquet	X	161
8.	Getting Up a Party	X	165

		Vol.	Page
9.	The Boy Scouts	X	172
10.	The Knights of King Arthur	X	177
11.	The Woodcraft League	X	181
12.	The Camp-Fire Girls	X	188
13.	Our Family Camp	X	257

22. OLD-FASHIONED STORIES

"Old friends and old books are best." There is often a delightful flavor about the language or the incidents of these old-fashioned stories. Some of them would be worth cherishing for their quaint, daintily colored illustrations alone.

		Vol.	Page
1.	Ross Carson's Courage	III	362
2.	Simple Susan: Queen of the May	III	405
3.	Uncle David's Story About Giants and Fairies	III	436
4.	The Oyster Patties	III	445
5.	The Purple Jar	III	451
6.	The Porcelain Stove	III	458
7.	Stories of Heroism	III	469
8.	Stories of Human Love	III	517
9.	Saved by a Fiddle: a Trapper's Tale	VI	211
10.	The Blue Juniata	XII	65
11.	O Happy Day	XII	147
12.	John Anderson My Jo	XII	164

23. SONGS OF THIS WONDERFUL WORLD

Don't you often feel when you go out on a beautiful summer or a sparkling winter day like making up poetry about it, or at least singing songs about it all? Here are some of the great poems that have been written about nature, full of the singing spirit—such as we would have liked to have been able to compose ourselves.

		Vol.	Page
1.	The Wonderful World	I	184
2.	The World	I	515
3.	Sir Lark and King Sun	I	525

		Vol.	Page
4.	When the Cows Come Home	III	534
5.	A Song of Seasons	XI	111
6.	April	XI	113
7.	Home Thoughts from Abroad	XI	113
8.	Spring in Carolina	XI	114
9.	God's Miracle of May	XI	116
10.	June	XI	117
11.	Daybreak	XI	125
12.	Hymn to the Night	XI	129
13.	The Sea	XI	131
14.	Song of the Brook	XI	141
15.	Afton Water	XI	144
16.	Daffodils	XI	150
17.	The Use of Flowers	XI	169
18.	To a Skylark	XI	171
19.	The Humblebee	XI	177
20.	A-Hunting We Will Go	XI	271
21.	Sleigh Song	XI	272
22.	Hunting Song	XI	273
23.	The Angler's Wish	XI	274
24.	Going a-Nutting	XI	279
25.	The Joys of the Road	XI	280
26.	The Cataract of Lodore	XI	463

24. BOYS AND GIRLS AT WORK AND PLAY

How to play a few games, to make a few toys, to do a few pieces of good work. And then some verses about these things.

		Vol.	Page
1.	Hinks, Silent Partner	III	289
2.	The Four-Dollar Servant	III	313
3.	Bird Houses and How to Build Them	V	537
4.	Magic Cities	X	6
5.	"Imaginary Countries": A Curious Child's Play	X	16
6.	Bottle Dolls	X	20
7.	Indoor Games	X	31
8.	Toys and Toy Games	X	70
9.	Outdoor Games	X	129
10.	Home Pets	X	212
11.	The Boy	XI	44
12.	Whittling	XI	45

		Vol.	Page
13.	The Flight of Youth	XI	52
14.	Seein' Things	XI	52
15.	The Barefoot Boy	XI	54
16.	Farm-Yard Song	XI	185
17.	Sleigh-Song	XI	272
18.	Going a-Nutting	XI	279

25. ANIMAL INTELLIGENCE

Again we turn to the pages of our fourth and fifth volumes, in order to select out a few of the interesting stories that show how animal instinct guides to ways of conduct that often seem to show marvels of memory, calculation, and reasoning. These incidents do much to increase our love for our little brothers of the fields and woods.

		Vol.	Page
1.	A Field-Mouse Tale	IV	255
2.	Friskytoes	IV	262
3.	Adventures of the Weasel	IV	286
4.	The Elephant Trainers of Ceylon	IV	515
5.	Training Wild Animals	IV	523
6.	A Clever Specimen	V	2
7.	The Gelada	V	10
8.	Foxes	V	85
9.	American Foxes	V	88
10.	The Weasel Tribe	V	91
11.	Macaws	V	275
12.	The Frilled Lizard	V	308
13.	The Chameleon	V	308
14.	Ants	V	373
15.	Gossamers	V	394
16.	The Spiders	V	581

26. WHEN GREAT FOLKS WERE LITTLE FOLKS

Those who became famous were, as children, often no more fortunate, no more comfortable, certainly no more happy than ourselves. It is fascinating and it is encouraging to read how these great men and women started life in much the same way some of us are starting it now.

		Vol.	Page
1.	The Boyhood of George Washington	VII	3
2.	The Boyhood of Benjamin Franklin	VII	8
3.	The Girlhood of Queen Victoria	VII	13
4.	The Boyhood of Abraham Lincoln	VII	16
5.	The Cherry Festival of Naumburg	VII	34
6.	The Boy Who Braved the Duke	VII	37
7.	The Story of Abraham Lincoln	VII	89
8.	The Story of Benjamin Franklin	VII	105
9.	An Inventor's Boyhood	IX	17
10.	The Boy Who Was Helped	IX	20
11.	The Boyhood of a Discoverer	IX	23
12.	Hans Christian Andersen	IX	33
13.	Sir Walter Scott's "Pet Marjorie"	IX	123
14.	Raphael	IX	247
15.	Michael Angelo	IX	263
16.	Velasquez	IX	268
17.	Sir John Everett Millais	IX	305
18.	Jean-François Millet	IX	312
19.	Swift—and Stella	IX	342
20.	Thomas Carlyle	IX	354

27. ANIMAL FUN AND FICTION

Have animals a sense of humor? It is a question oft discussed. Anybody who has watched wild rabbits at play, diving ducks, baby hedgehogs or monkeys in a cage, has little doubt on the subject. These are stories, based on fact, of the funny ways of the little creatures.

		Vol.	Page
1.	The Little Bull-Calf and the Poppy	IV	268
2.	Miss Tabbycat's Adventures	IV	271
3.	Sally	IV	275
4.	The Collie's Story	IV	280
5.	Muffles	IV	282
6.	Brother Rabbit's Cradle	IV	307
7.	Reynard the Fox	IV	420
8.	Black Beauty	IV	479
9.	The Blood Horse	XI	179
10.	The Arab to His Favorite Steed	XI	191
11.	Cruelty to Animals	XI	193
12.	A Night with a Wolf	XI	264

28. HAPPY HOLIDAYS

Some suggestions and songs and stories of the festivals and happenings of home life all round the year.

		Vol.	Page
1.	The Land of Counterpane	I	82
2.	There Was a Little Girl	I	82
3.	Foreign Children	I	84
4.	The Unseen Playmate	I	84
5.	A Boy's Song	I	94
6.	Thanksgiving Day	I	168
7.	A Visit from St. Nicholas	I	173
8.	The Visit to Santa Claus Land	I	507
9.	The Hole in the Wall	III	537
10.	The New Year's Festival	VI	125
11.	Good Times in Spain	VI	138
12.	Drifting	XI	200
13.	Brightest and Best of the Sons of the Morning	XI	413
14.	A Christmas Carol	XI	414
15.	Christmas in England	XI	415
16.	God Rest Ye, Merry Gentlemen	XI	416
17.	Old Christmas Returned	XI	416
18.	Hymn for Christmas	XI	417
19.	A Christmas Hymn	XI	418
20.	O Little Town of Bethlehem	XI	419
21.	While Shepherds Watched Their Flocks by Night	XI	421
22.	The Star of Bethlehem	XI	422
23.	The Angels' Song	XI	423
24.	The Three Kings	XI	424

29. HOW TO KNOW THE TREES

Did you ever adopt a tree? We know a family where, each spring, the children agree upon some tree, in the yard or near by forest, that is to be theirs all through the year. Every few days they go out to visit it, to study its changes and to give it

company. It is a pretty idea. Suppose you try it. This section tells you how to know your adopted children.

		Vol.	Page
1.	How to Study the Trees	VIII	481
2.	The Life of a Tree	VIII	488
3.	The Oaks	VIII	495
4.	The Pines	VIII	501
5.	The Apple	VIII	505
6.	The Yew	VIII	510
7.	The Beech	VIII	515
8.	The Birch	VIII	517
9.	The Walnut	VIII	520
10.	The Redwood	VIII	522
11.	The Palms	VIII	524

30. MYTHS AND LEGENDS

In these lovely tales of the olden time we often find curious explanations of the world's mysteries, stories that have grown into marvelous proportions about men and women who really lived and incidents of kindness and heroism that are not less beautiful because they are imaginary. A child is poor, indeed, who does not know these "Islands of purple story, lit with the westering gleam."

		Vol.	Page
1.	The Imps in the Heavenly Meadow	I	526
2.	Baucis and Philemon	II	1
3.	Pandora	II	9
4.	Midas	II	15
5.	Cadmus	II	22
6.	Proserpina	II	30
7.	The Story of Atalanta	II	49
8.	Pyramus and Thisbe	II	51
9.	Orpheus	II	53
10.	The Blind Man, the Deaf Man, and the Donkey	II	96
11.	Harisarman	II	103
12.	Why the Fish Laughed	II	106
13.	Muchie Lal	II	111
14.	How the Rajah's Son Won the Princess Labam	II	119
15.	The Old Man and the Devils	II	137
16.	The Two Brothers	II	147

		Vol.	Page
17.	Whittington and His Cat	II	356
18.	Tom Hickathrift	II	364
19.	Heroes of Persia	II	491
20.	Kenach's Little Woman	II	506
21.	Saint Nicholas	II	511
22.	On the Shores of Longing	II	520
23.	The Triumph at Tara	II	526
24.	The Guardians of the Door	II	529
25.	The Handmill Behind the Door; or, Why the Sea Became Salt	II	534
26.	The Singing Snowshoes	II	540
27.	Kilhugh and Olwen	II	543
28.	The Matsuyama Mirror	II	547
29.	The Water of Youth	III	526
30.	The King of Tiny Frogs on His Travels	IV	541

31. BALLADS AND HERO-TALES

Most of these are stories in verse. They have a flowing rhythm and a swinging movement, so that you want to read them aloud and perhaps memorize them, so that you can tell them to others.

		Vol.	Page
1.	The Abbot of Inisfalen	II	503
2.	Romance	III	270
3.	A Second Trial	III	307
4.	The Porcelain Stove	III	459
5.	The Romance of the Swan's Nest	III	522
6.	Defending the Fort	IV	1
7.	The Boatman's Story	IV	5
8.	Meg Merrilies	VI	217
9.	Kate Barlass	VII	331
10.	The Prayer	VII	433
11.	Casabianca	XI	57
12.	The Sands o' Dee	XI	133
13.	Burial of Moses	XI	204
14.	The King of Denmark's Ride	XI	223
15.	Lochinvar	XI	224
16.	Ivry	XI	226
17.	Lord Ullin's Daughter	XI	232
18.	Marmion and Douglas	XI	234
19.	How They Brought the Good News	XI	237

		Vol.	Page
20.	The Pied Piper of Hamelin	XI	239
21.	The Glove and the Lions	XI	250
22.	Lady Clare	XI	255
23.	The Inchcape Rock	XI	261
24.	The Skeleton in Armor	XI	265
25.	Barbara Frietchie	XI	297
26.	Hohenlinden	XI	308
27.	The Burial of Sir John Moore	XI	309
28.	Marco Bozzaris	XI	319
29.	Sheridan's Ride	XI	323
30.	The Lady of Shalott	XI	373
31.	Excelsior	XI	383
32.	Ulysses	XI	461
33.	Dorothy Q	XI	472
34.	To My Grandmother	XI	475
35.	Morte d'Arthur	XI	477
36.	The Lorelei	XI	491

32. HOW TO KNOW THE ANIMAL WORLD

Just as we have been learning how to identify the trees, so now we have the opportunity to learn to call some of the great families of animals by name, and to understand more about their wild or endearing ways.

		Vol.	Page
1.	The Spring Migration	V	473
2.	The Mating of the Birds	V	479
3.	The Way the Scientists Group the Birds	V	481
4.	Identification of the Birds	V	485
5.	The Robin	V	500
6.	The Bald Eagle	V	502
7.	The Bluebird	V	504
8.	The Screech Owl	V	506
9.	The Downy Woodpecker	V	508
10.	The Crow	V	512
11.	The Ruby-Throated Hummingbird	V	517
12.	The English Sparrow	V	519
13.	The Song Sparrow	V	522
14.	The Road-Runner	V	525
15.	The Junco	V	527
16.	How to Attract Birds	V	531
17.	Toads	V	547

		Vol.	Page
18.	Frogs	V	551
19.	Rabbits and Hares	V	555
20.	Squirrels	V	556
21.	The Grasshoppers	V	591
22.	Home Pets	X	212
23.	The Sandpiper	XI	180
24.	The Tiger	XI	181
25.	To a Mouse	XI	182
26.	The Eagle	XI	184
27.	Robert of Lincoln	XI	189
28.	He Prayeth Best	XI	451

33. PICTURES SCHOOL CHILDREN LIKE

There are over 400 illustrations in The Treasury, so the list below, of about forty selected pictures, is by no means comprehensive. It aims simply to call especial attention to a few that you may like to study more carefully at this time. Those mentioned in Volume XII are described in the text. The references are to the facing-pages or to the point where the article or story which the picture illustrates begins.

		Vol.	Page
1.	The Fairies Sing Titania to Sleep	III	*Frontispiece*
2.	Susan Was in Her Garden	III	408
3.	Philip Found that He Was Wanted to Hold the Jug	III	428
4.	Susan and Rose	III	432
5.	Each of My Visitors	III	436
6.	The Bread-Winner	III	540
7.	Eskimo Boys	VI	52
8.	Polar Bears on the "Erik"	VI	268
9.	Children of Volendam	VI	324
10.	Feeding the Doves in Venice	VI	428
11.	The Princes in the Tower	VI	476
12.	Columbus and His Son Diego	VI	520
13.	Robert Bruce Watching the Spider	VII	220
14.	The Boyhood of Sir Walter Raleigh	VII 240; XII	286
15.	Young Handel	IX	224
16.	Las Meninas	IX	274
17.	Perfect Bliss	IX	308
18.	Swift and Stella	IX 344; XII	290

		Vol.	Page
19.	Gull Monument, Salt Lake City	IX	416
20.	Pleasant Pictures of Child Life—I.	X	32
21.	A Children's Party	X	48
22.	Pleasant Pictures of Child Life—II.	X	64
23.	Snow Games	X	136
24.	Pets	X	212
25.	Physical Exercises for Boys and Girls—I.	X	444
26.	Physical Exercises for Boys and Girls—II.	X	446
27.	Physical Exercises for Boys and Girls—III.	X	448
28.	Physical Exercises for Boys and Girls—IV.	X	452
29.	Home Study	X	520
30.	Roman Girl at a Fountain ..... XII *Frontispiece;*	XII	281
31.	The Madonna of the Chair	XII	252
32.	The Guardian Angel	XII	256
33.	The Broken Pitcher	XII	268
34.	The Horse Fair	XII	272
35.	Finding Christ in the Temple	XII	280
36.	Joan of Arc	XII	284
37.	Abraham Lincoln	XII	287

34. THRILLING STORIES OF INVENTIONS

Nearly thirty interesting stories of the way some of the great useful forces and agencies of the universe were harnessed for the service of man.

		Vol.	Page
1.	From Forked Stick to Automobile	VIII	101
2.	Early Transportation in Our Western Country	VIII	107
3.	How the Panama Canal Was Made	VIII	164
4.	Automobiles	VIII	169
5.	How Electricity Was Harnessed	VIII	177
6.	Description of a Dynamo	VIII	190
7.	The Telegraph	VIII	207
8.	The Telephone	VIII	213
9.	Signaling Across Land and Sea	VIII	221
10.	The Wireless Telegraph	VIII	229
11.	The Wireless Telephone	VIII	235
12.	How Man Made Heat to Work	VIII	243
13.	Liquid Air	VIII	272
14.	The Electric Light	VIII	283
15.	Petroleum and Its Many Uses	VIII	288

		Vol.	Page
16.	X-Ray Photography	VIII	297
17.	How Man Learned to Use Tools	VIII	307
18.	How Father Nile Was Curbed	VIII	316
19.	How Man Came to Use Money	VIII	347
20.	The Minting of Coins	VIII	353
21.	Paper Money	VIII	359
22.	Origin of Names for Money	VIII	364
23.	How Pottery is Made	VIII	366
24.	Diving-Suits	VIII	377
25.	Great Days in Scientific Discovery	IX	157
26.	Louis Pasteur, a Hero of the Laboratory.	IX	196
27.	Lord Kelvin	IX	200
28.	Henry Ford and His Workmen	IX	491
29.	Discovery and Invention	IX	505

35. ADVENTURE STORIES

Stories with a thrill, some of them true, some half-true, and a few of them of the best art of the fiction-writer, that make life seem more interesting and worth while.

		Vol.	Page
1.	Gulliver's Travels	III	36
2.	Aladdin and the Wonderful Lamp	III	59
3.	The Enchanted Horse	III	73
4.	Sinbad the Sailor	III	80
5.	The Odyssey of Homer	III	119
6.	Robinson Crusoe	III	136
7.	Camp Hamperford	III	385
8.	Pomiuk	III	399
9.	Through the Sharks	III	499
10.	His Word of Honor	III	504
11.	Laying the Atlantic Cable	VI	246
12.	El Dorado	VI	261
13.	The Story of John Paul Jones	VII	129
14.	The Blind Led by the Dying	VII	419
15.	The Boyhood of a Discoverer	IX	23
16.	Heroic Pioneers of Science	IX	150
17.	The Carnegie Hero Fund	IX	412
18.	Heroes Who Fight Fire	IX	440
19.	A Voyage on an Ice-Pan	IX	470

36. CURIOSITIES OF THE ANIMAL WORLD

		Vol.	Page
1.	The Hunters of the Indian Jungle	IV	496
2.	In Quest of the Giraffe	IV	512
3.	A Clever Specimen	V	2
4.	The Proboscis-Monkey	V	11
5.	Spider-Monkeys	V	16
6.	Howlers	V	17
7.	The Ouakari	V	18
8.	The Couxia	V	19
9.	Lemurs	V	21
10.	Lemuroids	V	23
11.	The Bats	V	26
12.	Vampires	V	30
13.	The Insect-Eaters	V	33
14.	The Civets, the Aard-Wolf, and the Hyenas	V	68
15.	The Skunk	V	99
16.	The Seal Tribe	V	113
17.	The Whale Tribe	V	121
18.	The Narwhal	V	128
19.	Jerboas	V	145
20.	Gnus	V	177
21.	Giraffes, Deer, Camels, Zebras, Asses and Horses	V	179
22.	Camels	V	188
23.	Tapirs	V	206
24.	The Hippopotamus	V	207
25.	Ant-Eaters	V	213
26.	Kangaroo-Rats	V	221
27.	Opossums	V	228
28.	The Duckbill	V	231
29.	Toucans	V	250
30.	Love-Birds	V	276
31.	Ostriches, Herons, Cranes, Ibises, etc.	V	281
32.	Pelicans	V	294
33.	The Puffin and the Penguin	V	297
34.	Crocodiles and Alligators	V	302
35.	The Swordfish	V	344
36.	Flying Fishes	V	348
37.	The Sea-Horse	V	351

37. WHAT BOYS CAN MAKE AND DO

We have considerable pride and confidence in these explanations of handicraft and occupations for boys, because they have been worked out by real boys in accordance with these very drawings and descriptions.

		Vol.	Page
1.	How the Boy Scouts Helped the Nation	VII	412
2.	Toys Every Child Can Make	X	287
3.	Your Work-Bench	X	289
4.	Toys	X	294
5.	Water-Wheels	X	301
6.	Water-Pumps	X	307
7.	Time-Keepers	X	311
8.	Wind and Weather Gauges	X	316
9.	Steam-Engines	X	325
10.	Electrical Apparatus	X	336
11.	Leyden Jar	X	343
12.	A Derrick	X	343
13.	Bird Houses	V 537; X	346
14.	A Sand-Mill	X	349
15.	How to Make a Wireless Outfit	X	352
16.	How to Take Photographs	X	360
17.	Making the Home Garden	X	371
18.	Making and Selling Things	X	378
19.	Working for an Employer	X	388

38. WHAT GIRLS CAN MAKE AND DO

These achievements have actually been accomplished by girls, according to directions. Some of the girls may like to do some of the things mentioned in the last Reading Journey. Some of the boys may wish to try these.

		Vol.	Page
1.	Home Pets	X	212
2.	The Care of Small Aquariums	X	212
3.	Canaries	X	226
4.	Dogs	X	235
5.	Rabbits	X	236
6.	Guinea Pigs	X	240
7.	Toys	X	294

		Vol.	Page
8.	Bird Houses ..... V 537;	X	346
9.	How to Take Photographs	X	360
10.	Making the Home Garden	X	371
11.	Making and Selling Things; Suggestions for Girls	X	382
12.	An Upholsterer	X	385
13.	The General Helper	X	385
14.	A Pet Guardian	X	386
15.	A Silver Cleaner	X	386
16.	The Child Lover	X	387
17.	Rules for Health and Beauty for Girls...	X	428
18.	How Boys and Girls Should Exercise....	X	441

39. NOBLE WOMEN OF ALL TIME

Some of these women are living to-day, some were the glory of another age. Their stories are full of fascination and inspiration.

		Vol.	Page
1.	The Spartans	VII	41
2.	Joan, the Maid of France	VII	200
3.	The Sweetheart of a Million.....	VII	279
4.	Kate Barlass	VII	331
5.	The Story of Molly Pitcher	VII	335
6.	The Pipes at Lucknow	VII	340
7.	Marguerite de Roberval	VII	377
8.	The Story of Madeleine de Verchères	VII	383
9.	The Writer of "Little Women"	IX	40
10.	William and Caroline Herschel	IX	167
11.	Jenny Lind	IX	235
12.	A Singer Who Never Grew Old	IX	382
13.	Maude Adams	IX	496
14.	Julia C. Lathrop	IX	499
15.	The Landing of the Pilgrim Fathers	XI	285
16.	Barbara Frietchie	XI	297

40. GREAT MEN OF TO-DAY

The Editors asked themselves, "Who are the interesting men of the present and recent times whom our young readers

will be more likely to ask about and of whom they will wish to know?" These are the answers:

		Vol.	Page
1.	The Blind Led by the Dying	VII	419
2.	How Carey Held the Gap	VII	423
3.	The Schoolmaster Who Became the World's Spokesman	VII	427
4.	The Prayer	VII	433
5.	The King Who Lost His Country But Not His Soul	VII	435
6.	The Little Welshman Who Became Leader of an Empire	VII	441
7.	Always Fit	VII	448
8.	The Soldier Who Knew No Defeat	VII	461
9.	The Soldier Who Earned Every Promotion	VII	464
10.	Why Our Navy Went "Dry"	VII	468
11.	The Engineer Who Became a Food General	VII	472
12.	Hamilton Wright Mabie	IX	95
13.	Edward Everett Hale	IX	100
14.	Luther Burbank, the Flower Magician	IX	139
15.	Paderewski	IX	242
16.	William E. Henley	IX	391
17.	Burns of the Mountains	IX	481

41. THINGS WORTH SEEING IN AMERICA

This is really a "Reading Journey," and a journey, too, through the most wonderful country in the world. A few cities, a few great scenes, a few marvelous regions in The Land of the Free.

		Vol.	Page
1.	Odds and Ends in Mexico	VI	315
2.	Glimpses of Canada's Wonderland	VI	343
3.	New York, the World's Capital	VI	393
4.	Chicago	VI	400
5.	Boston, "The Hub"	VI	404
6.	The Charm of Washington	VI	408
7.	Dear Old Quebec	VI	414
8.	A Visit to Independence Hall	VI	483
9.	Niagara Falls	VI	487
10.	The Yosemite Valley	VI	491
11.	The West at Home	VI	498
12.	Life in a Lumber Camp	VIII	538

42. THE GREAT EXPLORERS

"Having eaten our shoes and saddles boiled with a few wild herbs, we set out to find the Kingdom of Gold," said Orellana, an early explorer. Many others, with light baggage and light hearts, have also set out for that Kingdom. Of these this portion of our Journeys tells us.

		Vol.	Page
1.	Mules, Mosquitoes, and Menageries in Venezuela	VI	202
2.	The Man Who Walked Across Africa	VI	223
3.	We Two Find the Sources of the Nile	VI	235
4.	Down the Grand Cañon in a Rowboat	VI	253
5.	El Dorado	VI	261
6.	The Discovery of the North Pole	VI	265
7.	The Discovery of the South Pole	VI	273
8.	The First Adventurers	VI	511
9.	The Exploits of Christopher Columbus	VI	519
10.	The Story of Henry Hudson	VI	532
11.	The Man Who Brightened the Dark Continent	VII	249
12.	Columbus	VII	305
13.	Drake of Devon	VII	311
14.	Incentives to Transportation	VIII	100

43. SONGS OF HUMAN LOVE

		Vol.	Page
1.	Auld Lang Syne	XII	44
2.	The Lass of Richmond Hill	XII	60
3.	True Love	XII	134
4.	The Lorelei	XII	135
5.	Love Song	XII	139
6.	Minka	XII	140
7.	Who is Sylvia?	XII	150
8.	Last Night	XII	153
9.	Then You'll Remember Me	XII	155
10.	Sally in Our Alley	XII	158
11.	Drink to Me Only with Thine Eyes	XII	159
12.	Mary of Argyle	XII	161
13.	Annie Laurie	XII	163
14.	Robin Adair	XII	166
15.	When the Swallows Homeward Fly	XII	167
16.	The Land o' the Leal	XII	224

44. BEST MUSIC AND GREAT MUSICIANS

		Vol.	Page
1.	The Troubadours	VII	60
2.	Handel	IX	223
3.	Beethoven	IX	225
4.	Mozart	IX	228
5.	Jenny Lind	IX	235
6.	Paderewski	IX	242
7.	Oft in the Stilly Night	XII	36
8.	The Light of Other Days	XII	39
9.	Integer Vitæ	XII	119
10.	Gaudeamus Igitur	XII	129
11.	The Tiszian	XII	142
12.	Who Is Sylvia?	XII	150
13.	Sally in Our Alley	XII	158
14.	Not a Sparrow Falleth	XII	210
15.	The Lost Chord	XII	217
16.	The Piano and How to Play It	XII	227
17.	On the Teaching of Singing and the Singer's Art	XII	235

45. AROUND THE YEAR WITH NATURE

Arranged for your convenience in the order of the volumes of The Treasury rather than of the months of the year; nevertheless these selections furnish suggestions for getting acquainted with Nature in every season.

		Vol.	Page
1.	Nature Study in the Spring	VIII	423
2.	Nature Study in the Summer	VIII	426
3.	Legends of the Flowers	VIII	471
4.	Rose Legends	VIII	474
5.	Lore of the Lily	VIII	477
6.	How to Study the Trees	VIII	481
7.	Our Family Camp	X	257
8.	Seeing Things Out of Doors	X	265
9.	The Primeval Forest	XI	148
10.	The Greenwood Tree	XI	148
11.	The Brave Old Oak	XI	149

		Vol.	Page
12.	A Forest Hymn	XI	155
13.	The Planting of the Apple-Tree	XI	158
14.	L'Allegro	XI	386

46. THINGS WORTH SEEING IN THE OLD WORLD

"The Grand Tour," it has been called, whether taken by kings or bridal couples or Cook tourists. These are some of the principal sights you will wish to see when you take your first trip abroad.

		Vol.	Page
1.	Things Seen in Holland	VI	321
2.	The Happy Home-Life of Spain	VI	328
3.	In the Highlands of Scotland	VI	334
4.	London, the Historic	VI	373
5.	Edinburgh, "Auld Reekie"	VI	383
6.	Paris, the Beautiful	VI	387
7.	The Sea-Charm of Venice	VI	423
8.	Florence	VI	431
9.	Rome, the Eternal	VI	438
10.	Mount Vesuvius and Pompeii	VI	455
11.	The Great Pyramid	VI	461
12.	The Coliseum	VI	466
13.	Shakespeare's Stratford	VI	469
14.	The Tower of London	VI	473

47. HEROES OF LEGEND

The greater figures in the world of myth and legend, whose names mean so much in the important books we read and whose lives are so full of the heroic spirit. We would be poor indeed without them.

		Vol.	Page
1.	Baldur	II	57
2.	Thor's Adventures Among the Jotuns	II	70
3.	The Apples of Idun	II	80
4.	The Gifts of the Dwarfs	II	85
5.	The Punishment of Loki	II	91
6.	Autumn and Spring	II	139
7.	The Star-Lovers	II	144

		Vol.	Page
8.	The Twelve Months	II	150
9.	The Sun; or, the Three Golden Hairs of the Old Man Vsévède	II	156
10.	Hiawatha	II	166
11.	Perseus	II	187
12.	Odysseus	II	202
13.	The Argonauts	II	222
14.	Theseus	II	246
15.	Hercules	II	259
16.	The Perilous Voyage of Æneas	II	273
17.	How Horatius Held the Bridge	II	282
18.	How Cincinnatus Saved Rome	II	284
19.	Beowulf	II	289
20.	How King Arthur Conquered Rome	II	302
21.	Sir Galahad and the Sacred Cup	II	314
22.	The Passing of Arthur	II	323
23.	Robin Hood	II	328
24.	Guy of Warwick	II	346
25.	Heroes of Scandinavia	II	370
26.	Havelock	II	383
27.	The Vikings	II	394
28.	Siegfried	II	405
29.	Roland	II	430
30.	The Cid	II	455
31.	William Tell	II	474
32.	Rustum and Sohrab	II	491
33.	St. Christopher	XII	354

48. THE CIRCLING SEASONS

Around the year with the poets.

		Vol.	Page
1.	Little Lac Grenier	VI	167
2.	A Song of Seasons	XI	111
3.	Spring in Carolina	XI	114
4.	June	XI	117
5.	What is So Rare as a Day in June	XI	118
6.	September	XI	120
7.	To Autumn	XI	122
8.	The Snow-Storm	XI	123
9.	Rain in Summer	XI	136
10.	The Cloud	XI	139

		Vol.	Page
11.	The Corn-Song	XI	151
12.	The Death of the Flowers	XI	162
13.	The Procession of the Flowers	XI	164
14.	Green Things Growing	XI	165
15.	The Rhodora	XI	166
16.	A Song of Clover	XI	166
17.	To a Mountain Daisy	XI	167
18.	Child's Talk in April	XI	175
19.	The Death of the Old Year	XI	356

49. ATHLETICS AND HEALTH

This department "needs no introduction to this audience." It consists of some rattling good athletic stories, some directions for keeping well and getting strong and some verses full of fresh air and the outdoor spirit.

		Vol.	Page
1.	Genius, Experience, and Something Else	III	329
2.	The Army-Navy Game	III	344
3.	"Puff"	III	353
4.	The Captain Who Did Not Play	III	366
5.	The Two-Miler	III	374
6.	The Care of the Body in Health	X	397
7.	Rules for Health and Beauty for Girls	X	428
8.	First Aid to the Injured	X	431
9.	How Boys and Girls Should Exercise	X	441
10.	Common-Sense Physical Training	X	449
11.	Systematic Physical Training	X	459
12.	Sleigh-Song	XI	272
13.	The Angler's Wish	XI	274
14.	Going A-Nutting	XI	279
15.	The Joys of the Road	XI	280

50. NATIONS WE NEED TO KNOW BETTER

A Journey with seven-league boots, indeed! It takes us from the Far East back to some of the little friendly countries of nearer Europe, and sets us down also in the Southern seas.

		Vol.	Page
1.	Mules, Mosquitoes, and Menageries in Venezuela	VI	202
2.	How They Live in China	VI	285
3.	The Hairy People	VI	295
4.	Among the Philippine Islands	VI	298
5.	Buying Wives in New Guinea	VI	303
6.	How They Live in Russia	VI	304
7.	At the Court of an East Indian Prince	VI	311
8.	Anything is Food to Them	VI	314
9.	Boys and Girls in Australia	VI	359
10.	The Pygmies of Africa	VI	364
11.	Benares, the Sacred City of India	VI	445
12.	Kioto	VI	448
13.	The Taj Mahal	VI	464

51. EVERYDAY HEROISM

This means the heroism of the fireman, the sailor, the policeman, the citizen who is called upon suddenly to forget himself and spring to the aid or rescue of another. These soldiers of the days of peace are just as worthy of medals and fame as the others.

		Vol.	Page
1.	A Wireless from Sombrero	III	321
2.	The Mounted Police of the Northwest	VI	169
3.	The Riders of the Plains	VI	174
4.	"Sweet Lavender"	VII	408
5.	How the Boy Scouts Helped the Nation	VII	412
6.	Stories of Everyday Heroism	IX	397
7.	A Westminster Abbey for Common People	IX	408
8.	The Carnegie Hero Fund	IX	412
9.	How the Sea Gulls Saved Utah	IX	416
10.	The Coast Guard	IX	438
11.	Heroes of the Deep	IX	453
12.	Goodwin Sands	IX	465
13.	The Loss of the "Birkenhead"	IX	468
14.	What Children Can Do for a Town	IX	475
15.	It Can be Done	IX	518
16.	How to Meet Hard Things	IX	519
17.	More Than Half-Beaten, but Fearless	IX	521
18.	The Victor	IX	586

52. MODERN ENGINEERING

DESCRIPTIONS, in language you can understand, of some of the marvels of construction, of canals, railroads, tunnels, ships, machinery, dams, steam and electric power.

		VOL.	PAGE
1.	Building a Railroad	VIII	115
2.	Bridges	VIII	126
3.	Building a Big Ship	VIII	133
4.	Our Great Battleships	VIII	142
5.	Submarines and Submarine Warfare	VIII	146
6.	How the Panama Canal Was Made	VIII	164
7.	Power from Falling Water	VIII	249
8.	Explosives	VIII	253
9.	Giant Guns	VIII	263
10.	Skyscrapers	VIII	313
11.	A Modern Mine	VIII	323
12.	Iron and Steel	VIII	338
13.	The Gyroscope and Its Applications	VIII	372

53. LIVES LAID DOWN FOR OTHERS

"THEY counted not their lives dear unto themselves," is the fine epitaph in an old Book for men and women who remembered themselves last, and gave their all that others might live. These are fine stories, full of unselfishness and heroism.

		VOL.	PAGE
1.	Before Sedan	VII	28
2.	Brother to the Lepers	VII	282
3.	Craven	VII	351
4.	Envy!	VII	406
5.	The Spires of Oxford	VII	407
6.	Heroic Pioneers of Science	IX	150
7.	Walter Reed, the Conqueror of Yellow Fever	IX	213
8.	Stories of Everyday Heroism	IX	397
9.	Heroes of the Railway Service	IX	420
10.	Heroes of the Life-Saving Service	IX	427
11.	Heroes Who Fight Fire	IX	440

		Vol.	Page
12.	Calnan's Christmas	IX	451
13.	The Blue and the Gray	XI	303
14.	The Charge of the Light Brigade	XI	305
15.	Incident of the French Camp	XI	306
16.	Warren's Address	XI	325
17.	The Happy Warrior	XI	468

54. SONGS OF JOY AND SORROW

To GAIN and retain a love for good poetry is one of the most satisfying pleasures in life. These are some of the most musical and appealing poems that tell of our deeper feelings. Many of them you will enjoy committing to your memory, where they will lie as your brightest jewels.

		Vol.	Page
1.	The Child-Musician	III	516
2.	'Tis the Last Rose of Summer	XI	163
3.	Poe's Cottage at Fordham	XI	198
4.	The Deserted Village	XI	207
5.	Soldier, Rest!	XI	310
6.	The Bugle	XI	354
7.	The Crowded Street	XI	354
8.	The Raven	XI	358
9.	The Haunted Palace	XI	363
10.	The Song of the Shirt	XI	369
11.	The Last Leaf	XI	372
12.	Those Evening Bells	XI	381
13.	The Bells of Shandon	XI	381
14.	The Lost Chord	XI	385
15.	Coronach	XI	427
16.	Break, Break, Break	XI	428
17.	Resignation	XI	428
18.	Footsteps of Angels	XI	430
19.	In Harbor	XI	432
20.	The Death-Bed	XI	433
21.	A Death-Bed	XI	433
22.	Jim's Kids	XI	434
23.	Annabel Lee	XI	436
24.	Sleep	XI	437
25.	Rest	XI	439
26.	Fair Helen	XI	440
27.	Too Late	XI	441

		Vol.	Page
28.	Song: On May Morning	XI	471
29.	Mignon's Song	XI	491
30.	A Musical Instrument	XI	493
31.	The Solitary Reaper	XI	495
32.	Parting of Hector and Andromache	XI	496

55. HEROIC MEN OF OLDEN TIMES

"Read how others strove,
Till we are stouter;
What they renounced,
Till we are less afraid, . . .
Brave names of men
And celestial women
Passed out of record
Into renown."

		Vol.	Page
1.	The Knights of Chivalry	VII	46
2.	The First Crusaders	VII	51
3.	The Pilgrim Fathers	VII	65
4.	The Puritans and the Indians	VII	81
5.	The Story of Patrick Henry	VII	114
6.	The Story of John Paul Jones	VII	129
7.	Daniel Boone, a Fighter of Indians	VII	136
8.	The Story of Sam Houston	VII	145
9.	The Story of Andrew Jackson	VII	163
10.	The Story of Ulysses S. Grant	VII	181
11.	Richard the Lion-Hearted	VII	193
12.	Seven National Heroes	VII	206
13.	William Wallace	VII	212
14.	Robert the Bruce	VII	218
15.	Sir Walter Raleigh	VII	235
16.	Oliver Cromwell	VII	307
17.	Drake of Devon	VII	311
18.	Nelson of the Nile	VII	320
19.	Though, It May Be, Above the Plot	VII	330
20.	The Sinking of the "Albemarle"	VII	343
21.	The "Monitor's" Great Fight	VII	353
22.	The High Tide at Gettysburg	VII	364
23.	The Adventures of Jacques Cartier	VII	369
24.	The Order of a Good Time	VII	380
25.	The Thermopylæ of Canada	VII	389

		Vol.	Page
26.	Wolfe and Montcalm	VII	391
27.	The Story of Laura Secord	VII	400
28.	Great Days in Scientific Discovery	IX	157
29.	William and Caroline Herschel	IX	167
30.	Charles Darwin	IX	178
31.	Michael Faraday	IX	185
32.	Thomas Carlyle	IX	360

56. LOVE OF COUNTRY

Here is a big, full section devoted to Patriotism. Here are some patriotic achievements, some splendid sentiments and a number of the best songs of devotion to motherland.

		Vol.	Page
1.	Oh Say! Does It Wave?	III	311
2.	The Despatch Bearer	III	479
3.	A Boy Hero	III	485
4.	The Young Hero of Haarlem	III	497
5.	The Last Class	III	511
6.	Magna Charta	VII	479
7.	The Declaration of Independence	VII	486
8.	The Magna Charta of Canada	VII	491
9.	How Great Britain is Governed	VII	493
10.	How Canada is Governed	VII	499
11.	How the United States is Governed	VII	507
12.	The Monroe Doctrine	VII	519
13.	The Gettysburg Address of Abraham Lincoln	VII	521
14.	The World Must Be Made Safe for Democracy	VII	522
15.	The New Citizen	VII	525
16.	Makers of the Flag	VII	527
17.	The Republic Will Endure	VII	529
18.	Your Uniform	VII	531
19.	You are the Hope of the World!	IX	581
20.	O Captain! My Captain!	XI	197
21.	The Death of Napoleon	XI	203
22.	Arnold von Winkelried	XI	258
23.	The Republic	XI	283
24.	America	XI	284
25.	The Landing of the Pilgrim Fathers	XI	285
26.	The American Flag	XI	286
27.	The Star-Spangled Banner	XI	288
28.	What Constitutes a State	XI	290

		Vol.	Page
29.	Breathes There the Man?	XI	291
30.	The Harp That Once Through Tara's Halls	XI	291
31.	My Heart's in the Highlands	XI	292
32.	Rule Britannia	XI	293
33.	The Bivouac of the Dead	XI	294
34.	The Marseillaise	XI	296
35.	Recessional	XI	301
36.	The Blue and the Gray	XI	303
37.	How Sleep the Brave	XI	317
38.	Battle-Hymn of the Republic	XI	318
39.	Bannockburn	XI	322
40.	Warren's Address	XI	325
41.	Magnolia Cemetery	XI	326

57. GREAT ARTISTS

We too often think of an artist's life as one of little excitement and adventure, but many of the world's notable painters had their early struggles, their romantic triumphs and their own useful part in history. We also enjoy their pictures better when we understand what they were aiming to express, and the times in which they lived.

		Vol.	Page
1.	Raphael	IX	247
2.	Michael Angelo	IX	263
3.	Reynolds, Painter of Children	IX	276
4.	William Blake	IX	278
5.	Holman Hunt	IX	283
6.	William Morris	IX	295
7.	Lord Leighton	IX	297
8.	Sir John Everett Millais	IX	305
9.	J. McNeill Whistler	IX	317
10.	Michael Angelo	XII	323
11.	Leonardo da Vinci	XII	332
12.	Raphael	XII	338
13.	Correggio	XII	346
14.	Titian	XII	350
15.	Veronese	XII	358
16.	The Della Robbias	XII	360
17.	Rubens	XII	371
18.	Van Dyck	XII	381

		Vol.	Page
19.	Other Followers of Rubens	XII	389
20.	Rembrandt	XII	392
21.	Velasquez	XII	403
22.	Murillo	XII	409
23.	The Barbizon Painters	XII	421
24.	Jean François Millet	XII	427
25.	The Impressionists	XII	434
26.	Sir Joshua Reynolds	XII	439
27.	Gainsborough	XII	447
28.	Constable	XII	452
29.	The Pre-Raphaelites	XII	462
30.	George Inness	XII	469
31.	John W. Alexander	XII	472
32.	Three Charming American Artists	XII	476

58. A SCORE OF WORLD WONDERS

Once there were "the Seven Wonders of the World." Today there are surely seventy. Ask yourself which of these you would most like to see or know about; then look down the following list and see if most of them are not described for you.

		Vol.	Page
1.	Man's Early Dreams	VIII	61
2.	Why Ice Floats	VIII	81
3.	The Treasures of the Snow	VIII	84
4.	Why the Tides Rise and Fall	VIII	96
5.	Platinum, the Noblest Metal	VIII	329
6.	Tungsten, a Wizard Metal	VIII	332
7.	Our Own Family of Stars	VIII	385
8.	The Constellations and Their Stories	VIII	404
9.	Comets	VIII	416
10.	How Plants Eat and Drink	VIII	431
11.	How Plants Work	VIII	438
12.	How Plants Sleep	VIII	442
13.	How Plants are Protected	VIII	445
14.	The Different Parts of a Flower	VIII	448
15.	The Wind and the Flowers	VIII	453
16.	How the Plant Babies Are Sent Out	VIII	458
17.	Robber Plants	VIII	464
18.	Some Curious Trees	VIII	533
19.	The Sea	XI	145
20.	The Primeval Forest	XI	148

59. THE CHOICE OF A LIFE WORK

By the time a boy or girl gets to the middle of high school the question of what he is going to do in the world is the most exciting and important of any that he thinks about. These chapters give some of the most sensible and suggestive pointers by those who know that we could gather, and they are bound to help you.

		Vol.	Page
1.	The Money-Value of Education	IX	523
2.	What College Will Do for You	IX	527
3.	Working One's Way Through College	IX	531
4.	The Self-Educating of Jim	IX	540
5.	The Story of Dick Saver and Martin Spender	IX	543
6.	Get a Broad Outlook	IX	548
7.	How to Study the Vocations	IX	552
8.	Characteristics of a Good Vocation	IX	555
9.	A Girl's Work in Life	IX	562
10.	A Boy's Manner	IX	570
11.	Working for an Employer	X	388
12.	How to Keep Personal Accounts	X	393

60. PICTURES WE LEARN TO LOVE

After a young man or woman leaves home for his life work he finds that among the most dearly cherished memories are the pictures that used to hang on the home-walls. If we can gather about us in youth paintings and illustrations that tell beautiful stories or recall wonderful vistas, we carry them with us as long as we live. The Treasury is such a picture-gallery.

		Vol.	Page
1.	Andromache	III	110
2.	A Stenographer in North Africa	VI	*Frontispiece*
3.	Northwestern Mounted Police	VI	169
4.	Flower-Lovers Lunching Under Beautiful Wistaria Arbors	VI	448
5.	Milton Dictating to his Daughters	VII	*Frontispiece*

		Vol.	Page
6.	Perils of the Puritans	VII	80
7.	Statue of Nathan Hale	VII	128
8.	Under the Shadows of the Great Trees Passed the Woman and the Cow	VII	400
9.	Sir Walter Scott	IX	72
10.	Whistler's Mother	IX	316
11.	Walt Whitman	IX	376
12.	A Camp Fire Girl	X	192
13.	The Fighting Téméraire	XII	294
14.	The Song of the Lark	XII	297
15.	The Gleaners	XII	298, 428
16.	The Sower	XII	302
17.	The Angelus	XII	304
18.	The Golden Stairs	XII	305
19.	The Huguenot Lover	XII	308
20.	The Bashful Suitor	XII	312
21.	Morning	XII	314
22.	Hope	XII	316
23.	Beaching the Boat	XII	318
24.	The Assumption	XII	319, 356
25.	Moses	XII	324
26.	The Artist's Son Titus	XII	396
27.	What We Can Learn to See in Pictures	XII	481
28.	The Qualities of a Good Picture	XII	491
29.	Artists' Terms	XII	496
30.	What Pictures Can Mean to All the People	XII	499

61. THE BEST THINGS IN LIFE

"What makes life worth living?" Who can answer this question for us as well as the poets, those who had insight and vision? Tennyson and Coleridge and Wordsworth and Longfellow and Father Faber and Clough shall tell us. These splendid rhymes will surely cheer and help us to build, as Doctor Holmes urged us, more stately mansions for our souls.

		Vol.	Page
1.	The Passion Play at Oberammergau	VI	146
2.	A French School-Girl's Message to America	VII	33
3.	The Victor	IX	586

		Vol.	Page
4.	To a Waterfowl	XI	184
5.	The Arsenal at Springfield	XI	314
6.	Abou ben Adhem	XI	390
7.	The Rainy Day	XI	390
8.	One by One	XI	391
9.	Polonius to Laertes	XI	392
10.	Be True	XI	393
11.	The Shepherd Boy Sings in the Valley	XI	394
12.	The Wants of Man	XI	394
13.	O Why Should the Spirit of Mortal be Proud?	XI	397
14.	Contentment	XI	399
15.	Elegy Written in a Country Churchyard	XI	400
16.	Thanatopsis	XI	404
17.	Consider	XI	407
18.	Peace	XI	408
19.	The Chambered Nautilus	XI	408
20.	The Village Blacksmith	XI	410
21.	Fidele	XI	411
22.	My Creed	XI	443
23.	O Yet We Trust That Somehow Good	XI	444
24.	The Universal Prayer	XI	445
25.	The Lost Sheep	XI	447
26.	Lead, Kindly Light	XI	448
27.	The Right Must Win	XI	448
28.	Gradatim	XI	450
29.	Saint Agnes	XI	451
30.	The New Year	XI	452
31.	Crossing the Bar	XI	454
32.	The Voice of the Heavens	XI	454
33.	Life	XI	455
34.	Strong Son of God, Immortal Love	XI	456
35.	Verses	XI	459
36.	The Happy Warrior	XI	468
37.	On His Blindness	XI	472
38.	Sir Galahad	XI	485
39.	My Ain Countree	XI	487
40.	The Angel of Patience	XI	489
41.	Qua Cursum Ventus	XI	500
42.	Ode on a Grecian Urn	XI	501
43.	Lucy	XI	503
44.	We Praise Thee, Lord	XII	199
45.	A Safe Stronghold	XII	204
46.	Palm Branches	XII	206

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